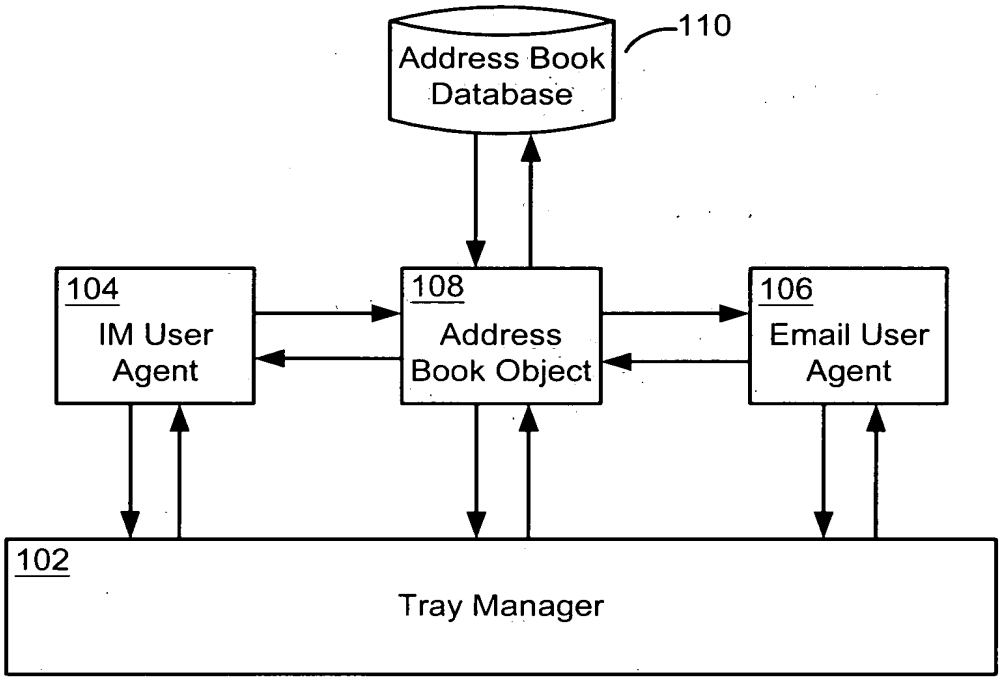

Address Book Database
110
104
IM User Agent
108
Address Book Object
106
Email User Agent
102
Tray Manager

FIG. 1

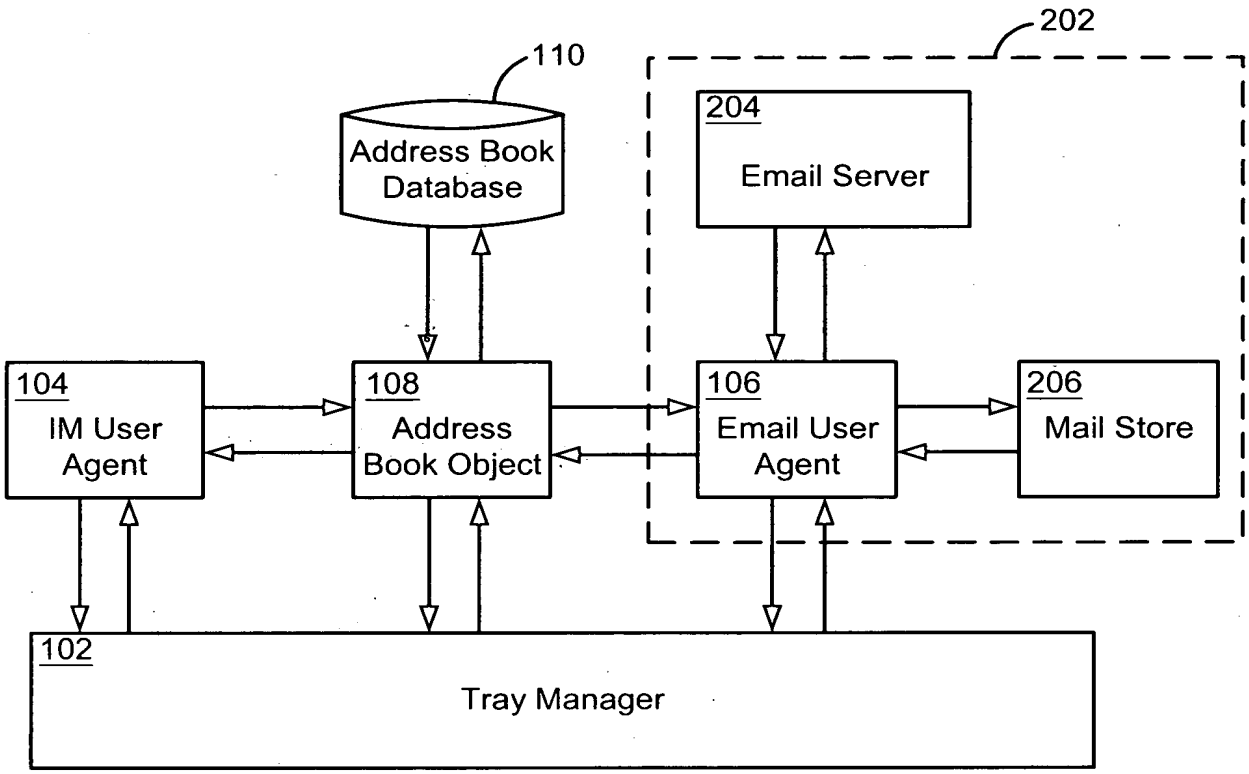

202
110
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager

FIG. 2A

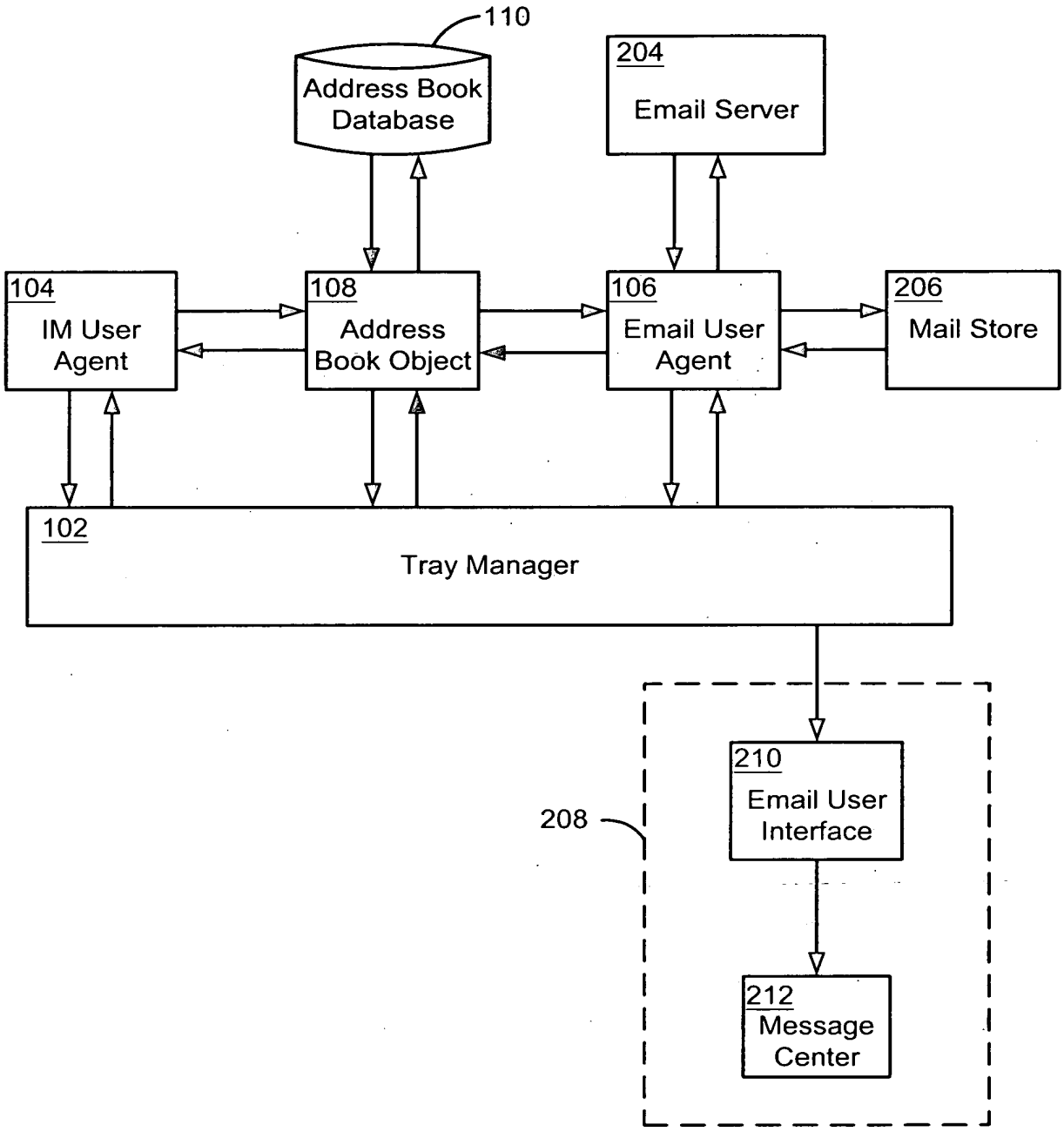

110
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
208
210
Email User Interface
212
Message Center

FIG. 2B

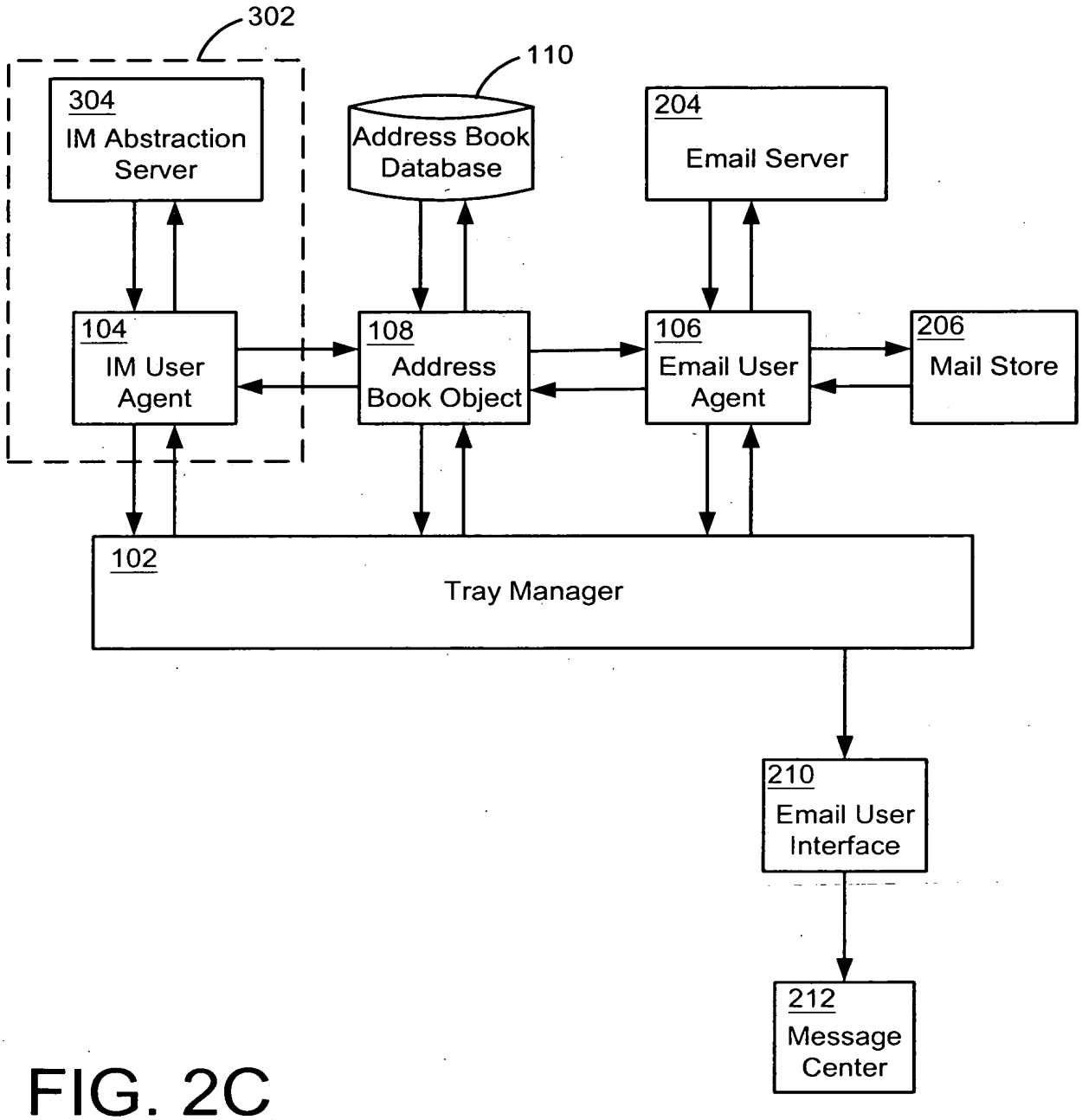

302
110
304
IM Abstraction Server
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
210
Email User Interface
212
Message Center

FIG. 2C

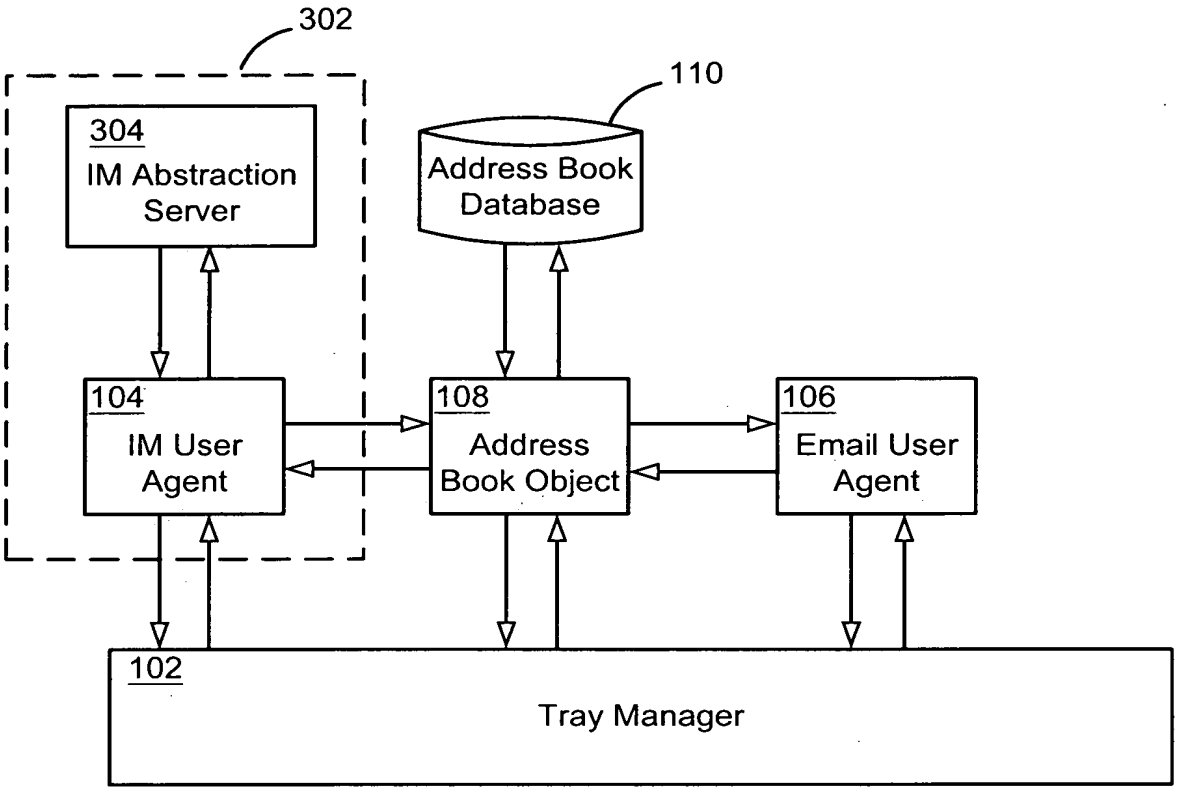

302
110
304
IM Abstraction Server
Address Book Database
104
IM User Agent
108
Address Book Object
106
Email User Agent
102
Tray Manager

FIG. 3A

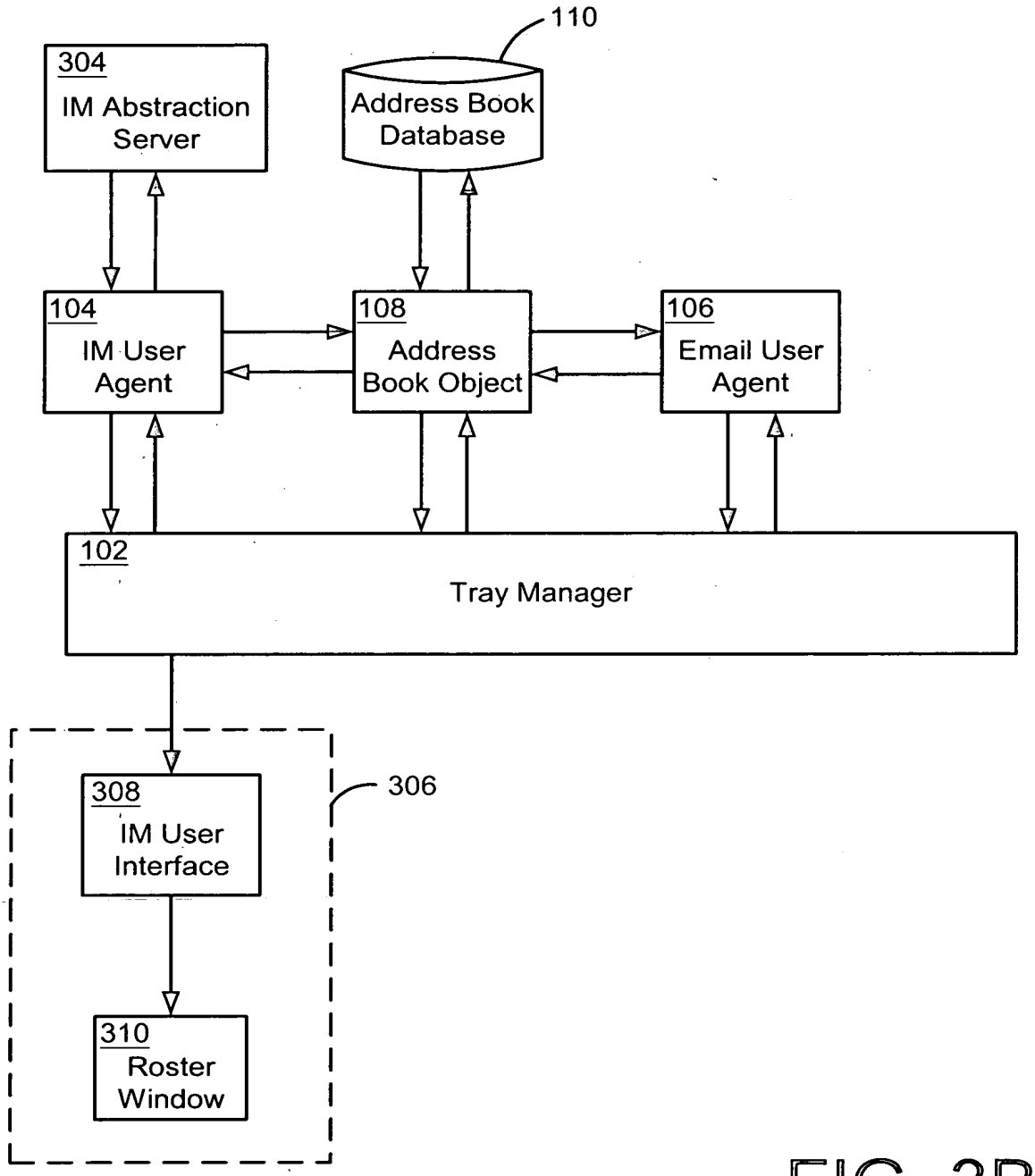

110
304
IM Abstraction Server
Address Book Database
104
IM User Agent
108
Address Book Object
106
Email User Agent
102
Tray Manager
306
308
IM User Interface
310
Roster Window

FIG. 3B

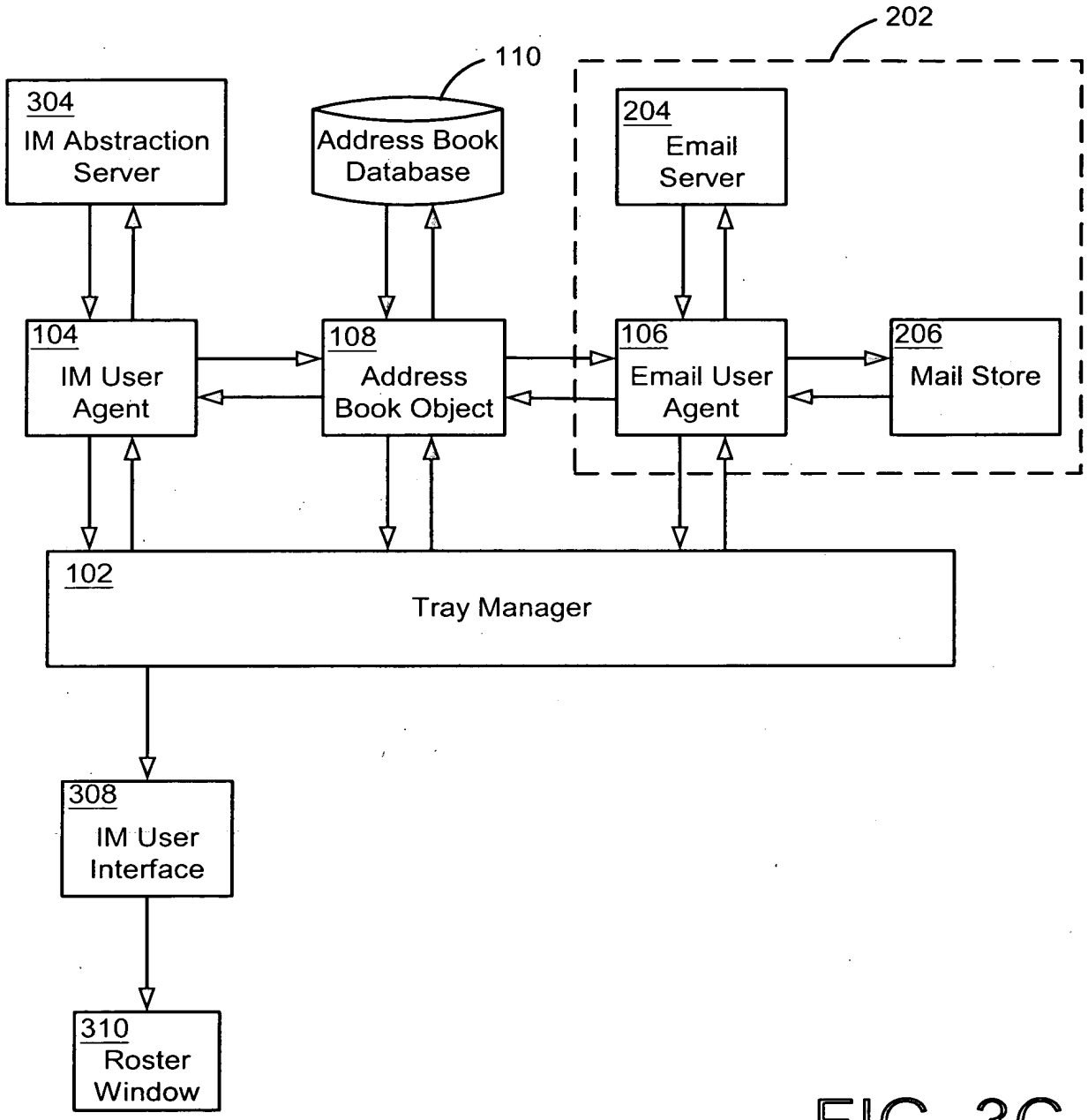

202
110
304
IM Abstraction Server
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
308
IM User Interface
310
Roster Window

FIG. 3C

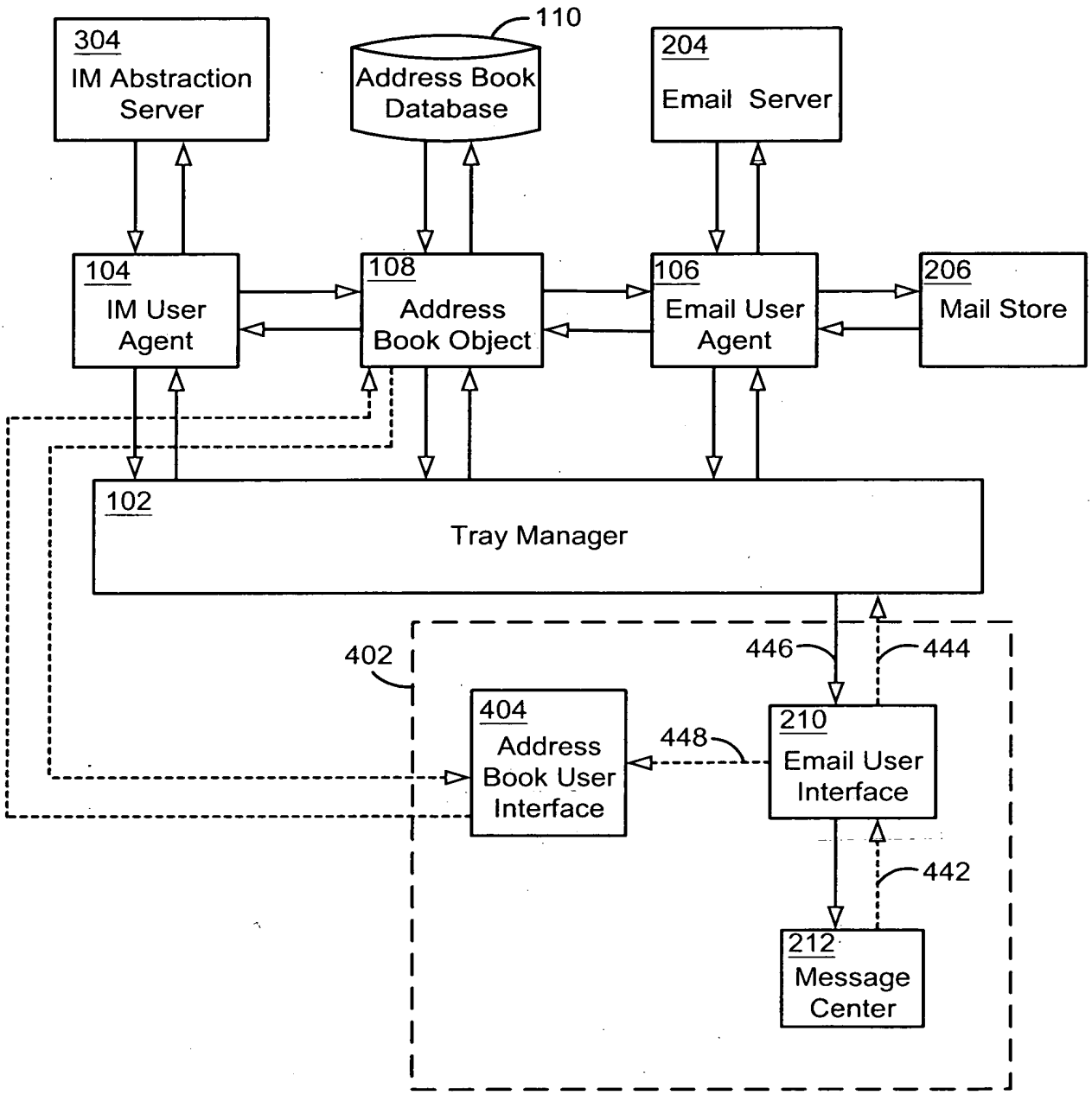

304
IM Abstraction Server
110
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
402
446
444
404
Address Book User Interface
448
210
Email User Interface
442
212
Message Center

FIG. 4A

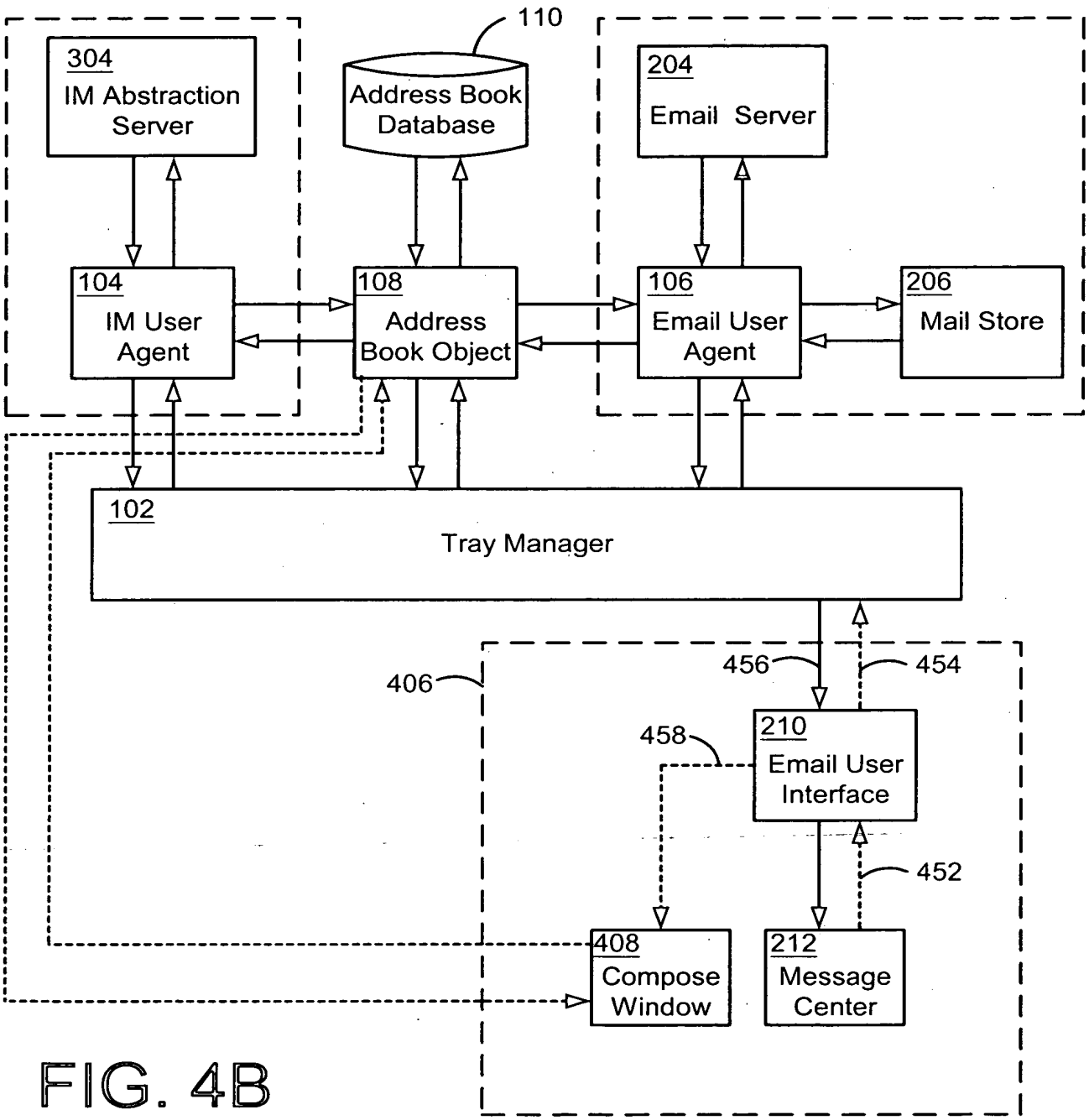

110
304
IM Abstraction Server
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
406
456
454
458
210
Email User Interface
452
408
Compose Window
212
Message Center

FIG. 4B

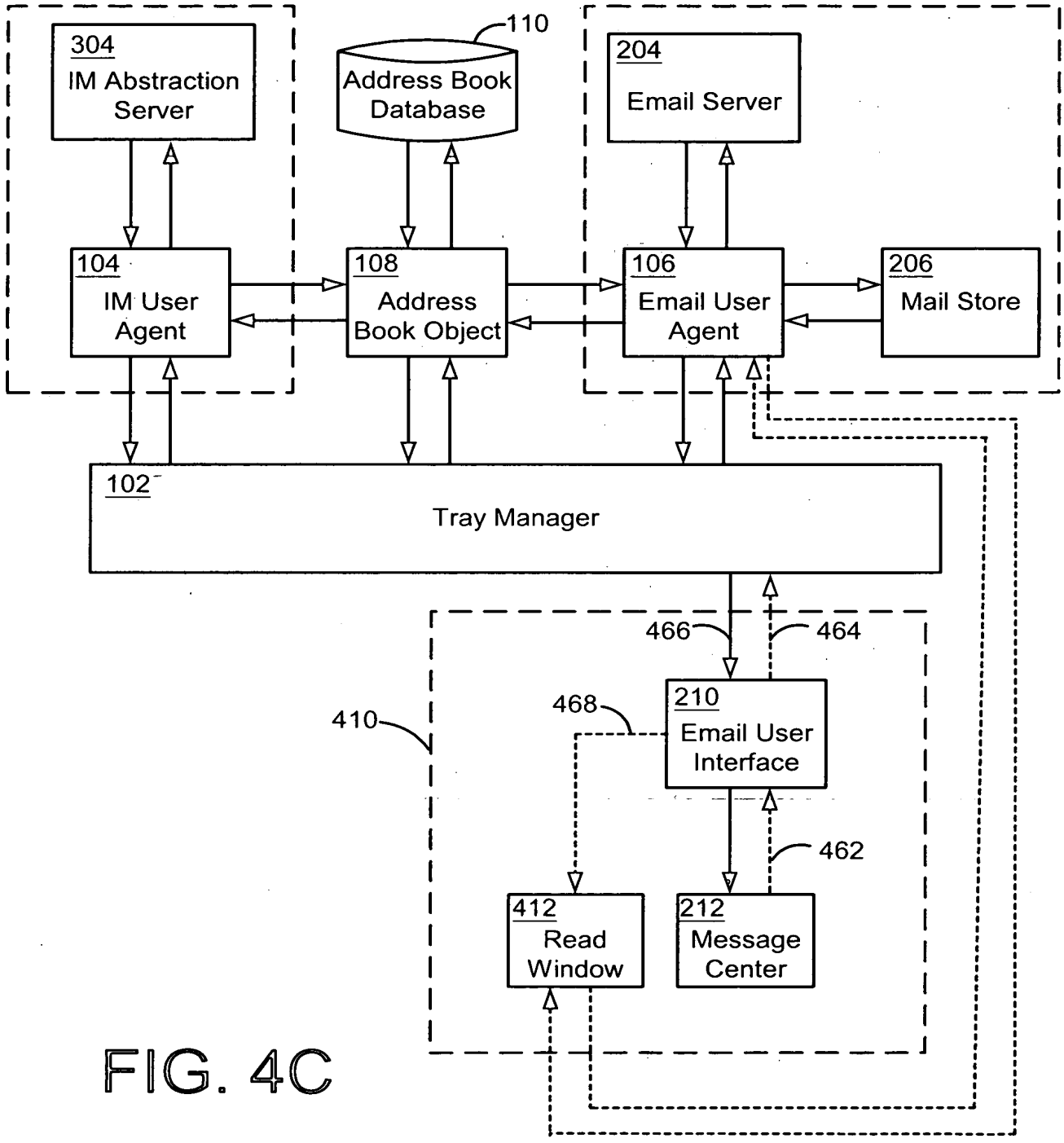

304
IM Abstraction Server
110
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
466
464
410
468
210
Email User Interface
462
412
Read Window
212
Message Center

FIG. 4C

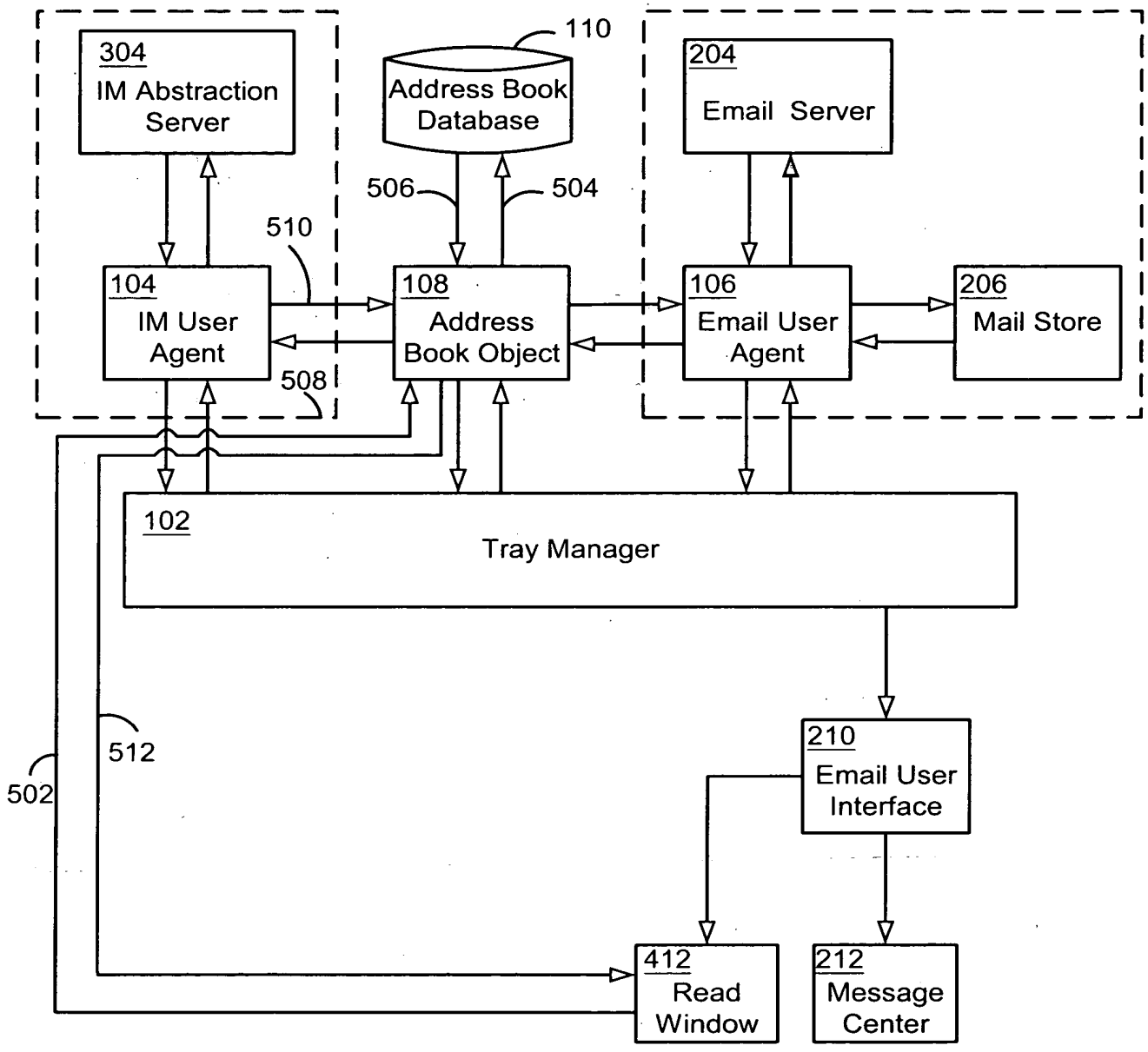

304
IM Abstraction Server
110
Address Book Database
204
Email Server
506
504
510
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
508
102
Tray Manager
512
502
210
Email User Interface
412
Read Window
212
Message Center

FIG. 5

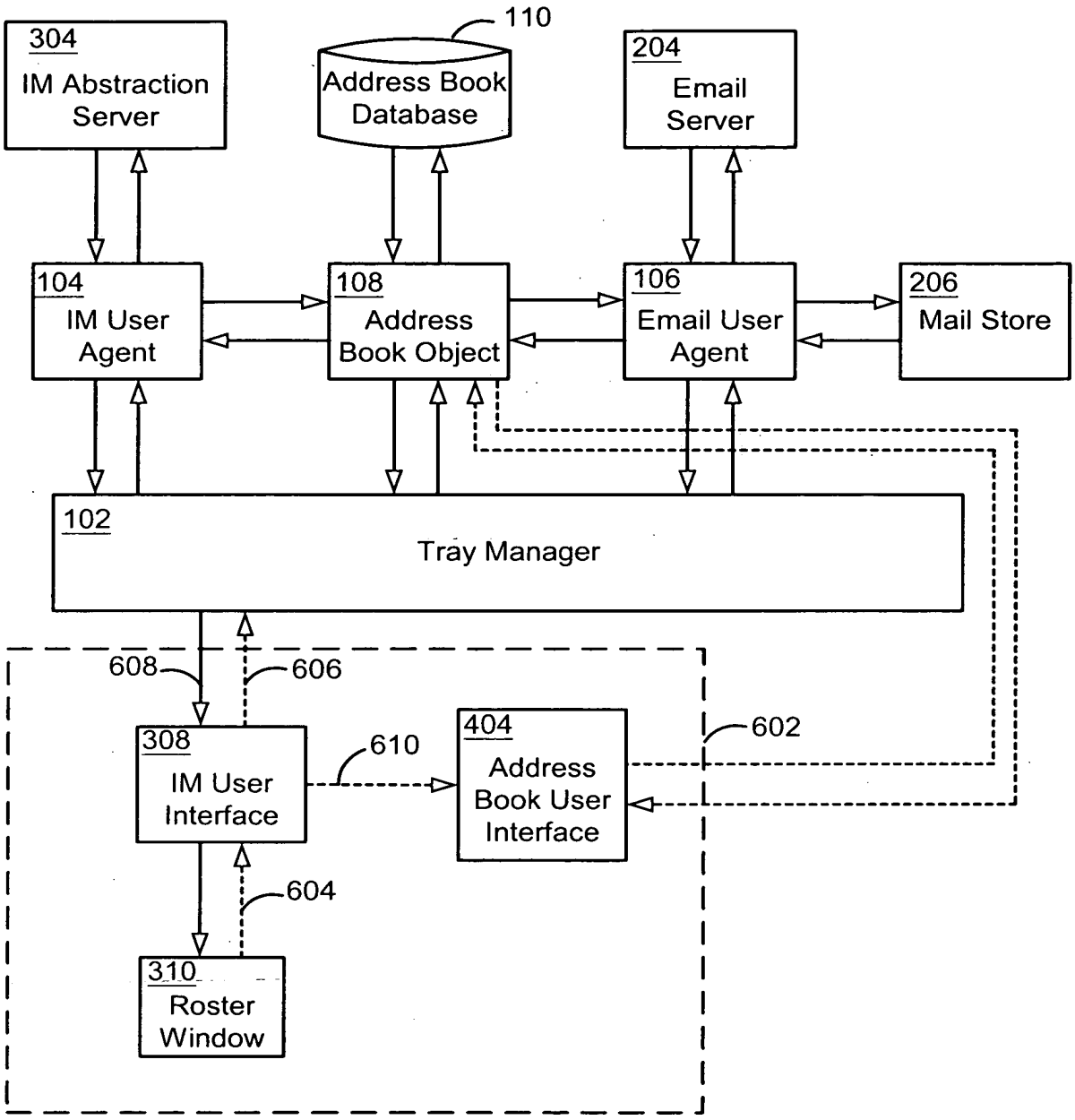

304
IM Abstraction Server
110
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
608
606
308
IM User Interface
610
404
Address Book User Interface
602
604
310
Roster Window

FIG. 6A

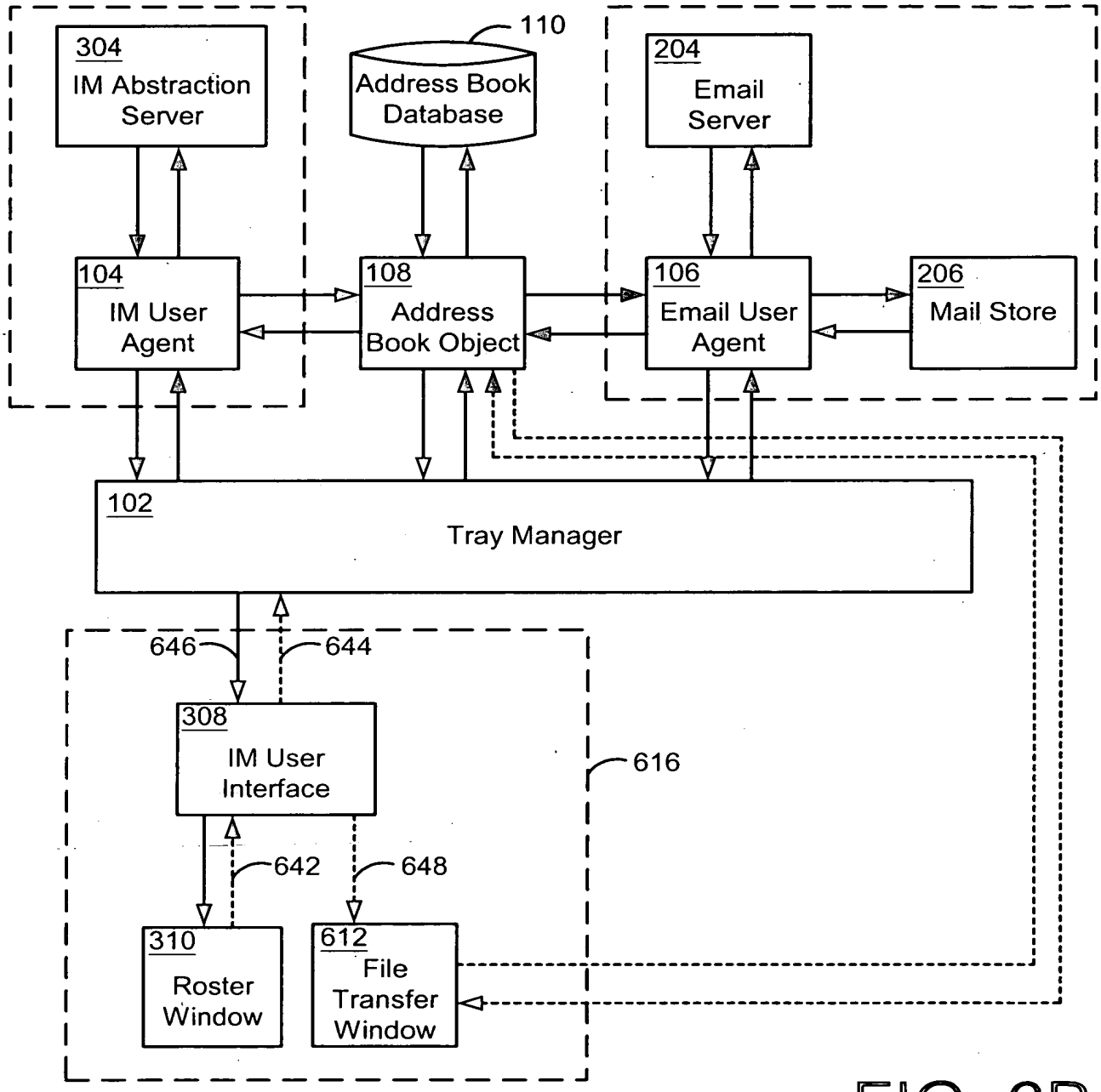

304
IM Abstraction Server
110
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
646
644
308
IM User Interface
616
642
648
310
Roster Window
612
File Transfer Window

FIG. 6B

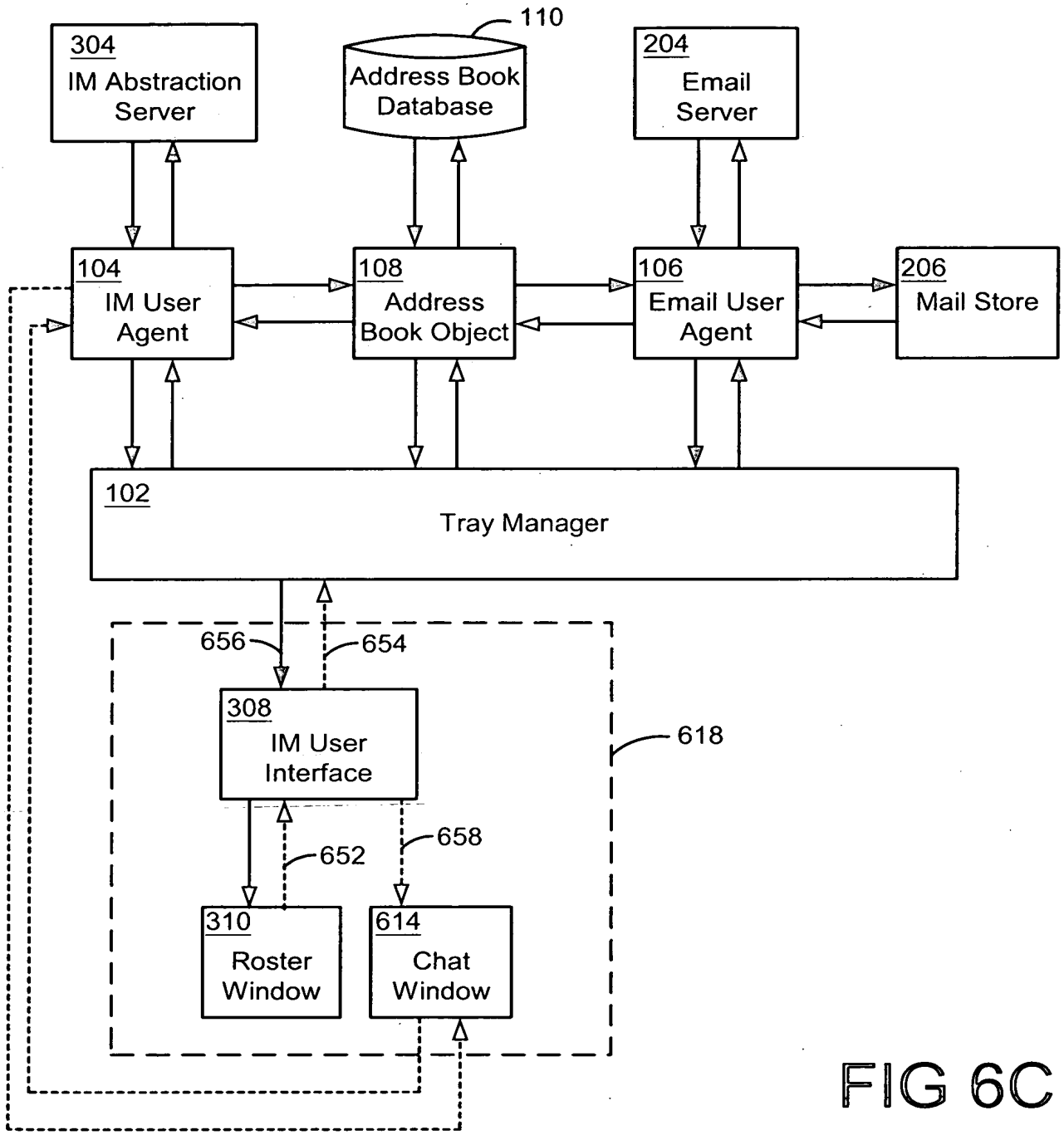

304
IM Abstraction Server
110
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
656
654
308
IM User Interface
618
658
652
310
Roster Window
614
Chat Window

FIG 6C

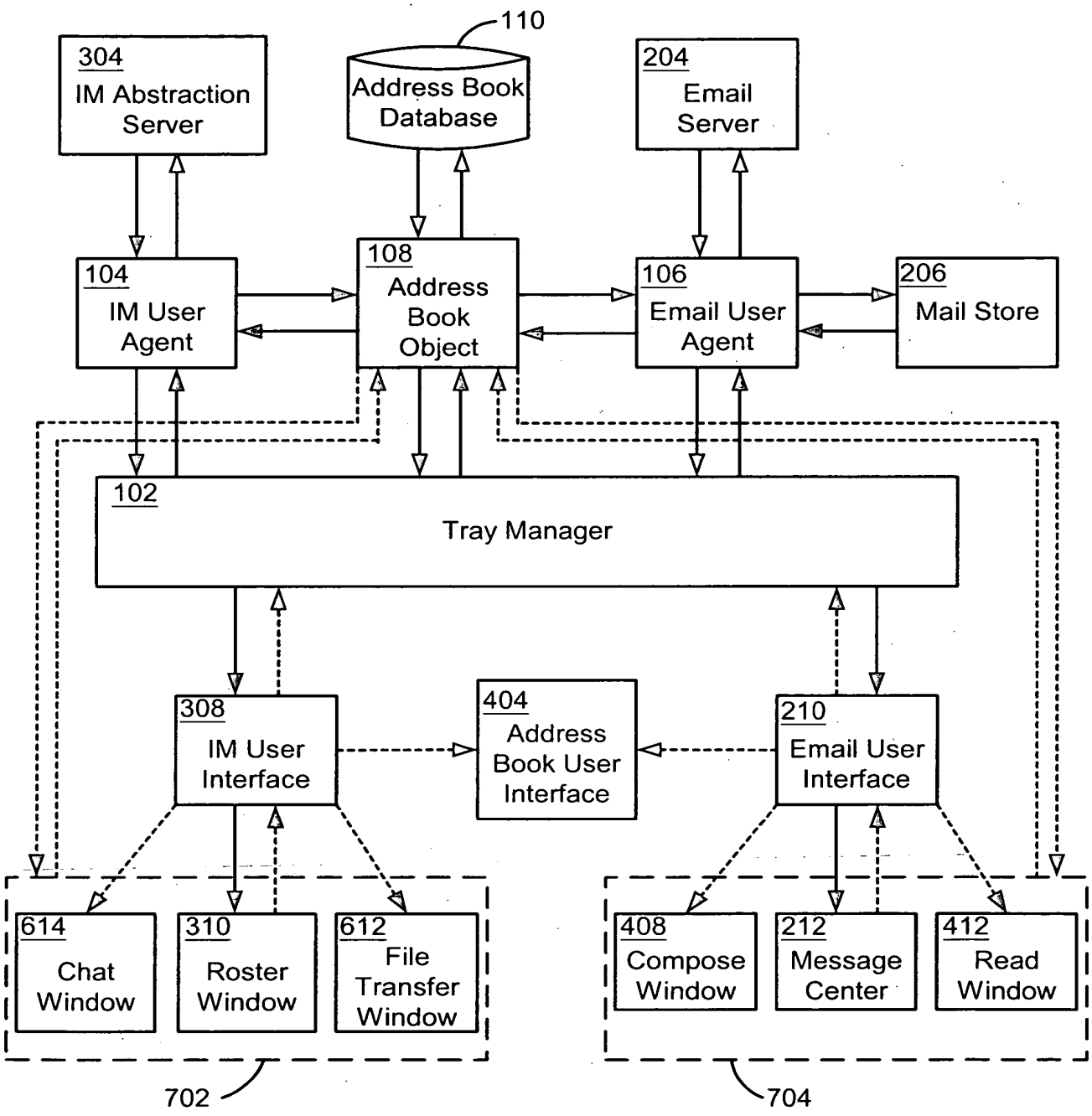

110
304
IM Abstraction Server
Address Book Database
204
Email Server
104
IM User Agent
108
Address Book Object
106
Email User Agent
206
Mail Store
102
Tray Manager
308
IM User Interface
404
Address Book User Interface
210
Email User Interface
614
Chat Window
310
Roster Window
612
File Transfer Window
408
Compose Window
212
Message Center
412
Read Window
702
704

FIG. 7

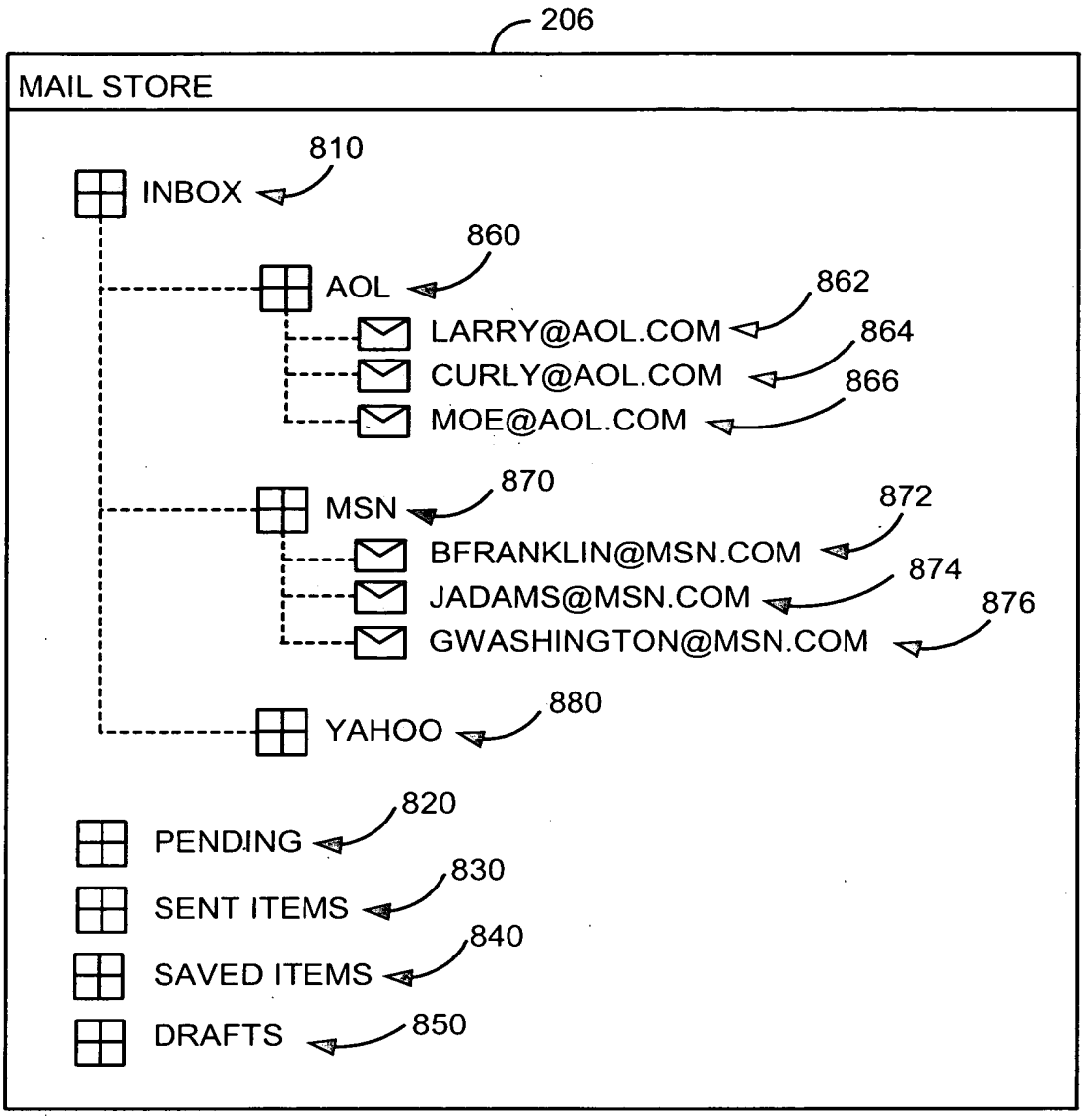

206
MAIL STORE
810
INBOX
860
AOL
862
LARRY@AOL.COM
864
CURLY@AOL.COM
866
MOE@AOL.COM
870
MSN
872
BFRANKLIN@MSN.COM
874
JADAMS@MSN.COM
876
GWASHINGTON@MSN.COM
880
YAHOO
820
PENDING
830
SENT ITEMS
840
SAVED ITEMS
850
DRAFTS

FIG. 8

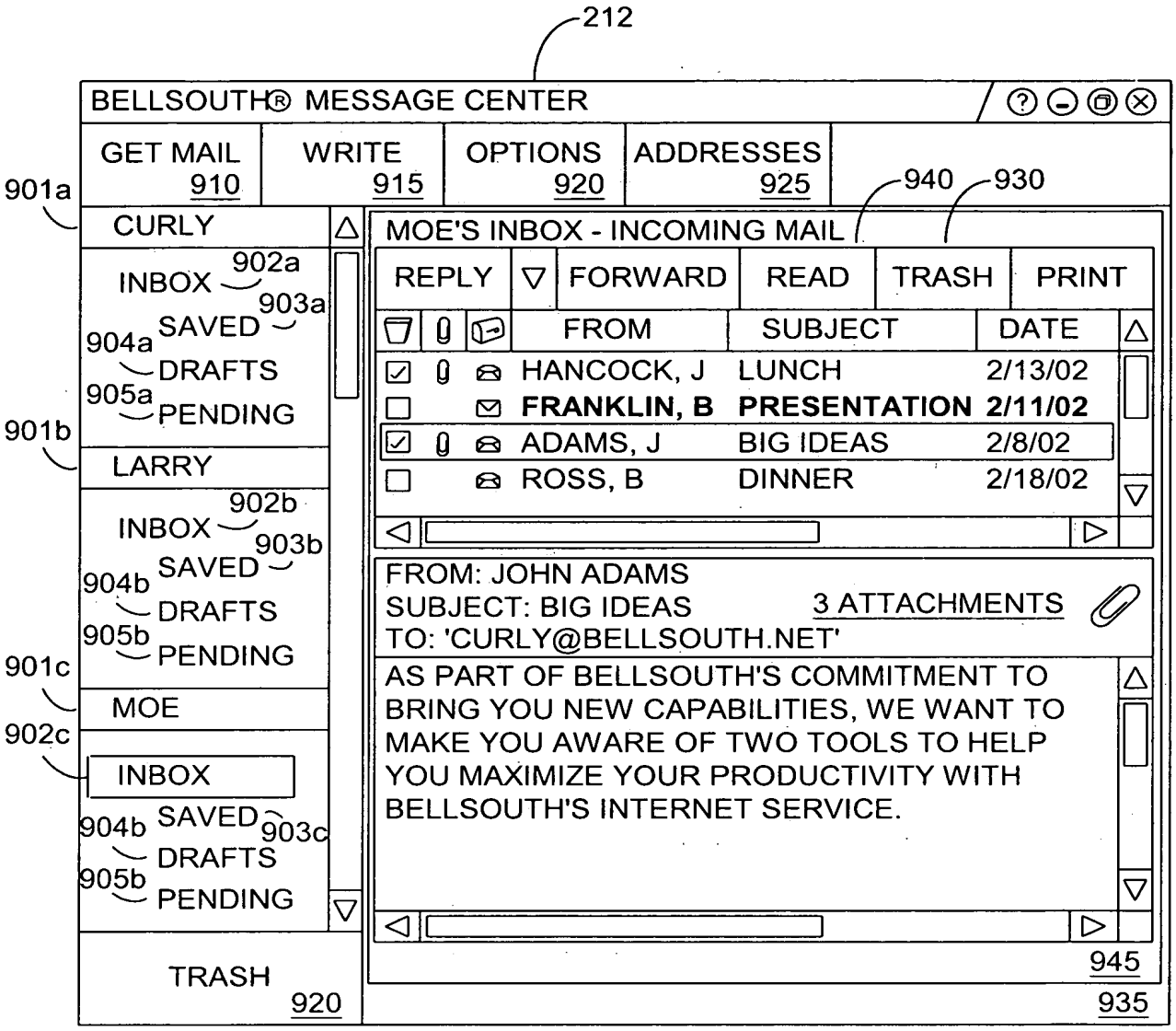

212
BELLSOUTH® MESSAGE CENTER
GET MAIL 910
WRITE 915
OPTIONS 920
ADDRESSES 925
940
930
901a
CURLY
INBOX 902a
SAVED 903a
904a DRAFTS
905a PENDING
901b
LARRY
INBOX 902b
SAVED 903b
904b DRAFTS
905b PENDING
901c
MOE
902c
INBOX
SAVED 903c
904b DRAFTS
905b PENDING
TRASH 920
MOE'S INBOX - INCOMING MAIL
REPLY
FORWARD
READ
TRASH
PRINT
FROM
SUBJECT
DATE
HANCOCK, J LUNCH 2/13/02
FRANKLIN, B PRESENTATION 2/11/02
ADAMS, J BIG IDEAS 2/8/02
ROSS, B DINNER 2/18/02
FROM: JOHN ADAMS
SUBJECT: BIG IDEAS
3 ATTACHMENTS
TO: 'CURLY@BELLSOUTH.NET'
AS PART OF BELLSOUTH'S COMMITMENT TO BRING YOU NEW CAPABILITIES, WE WANT TO MAKE YOU AWARE OF TWO TOOLS TO HELP YOU MAXIMIZE YOUR PRODUCTIVITY WITH BELLSOUTH'S INTERNET SERVICE.
945
935

FIG. 9

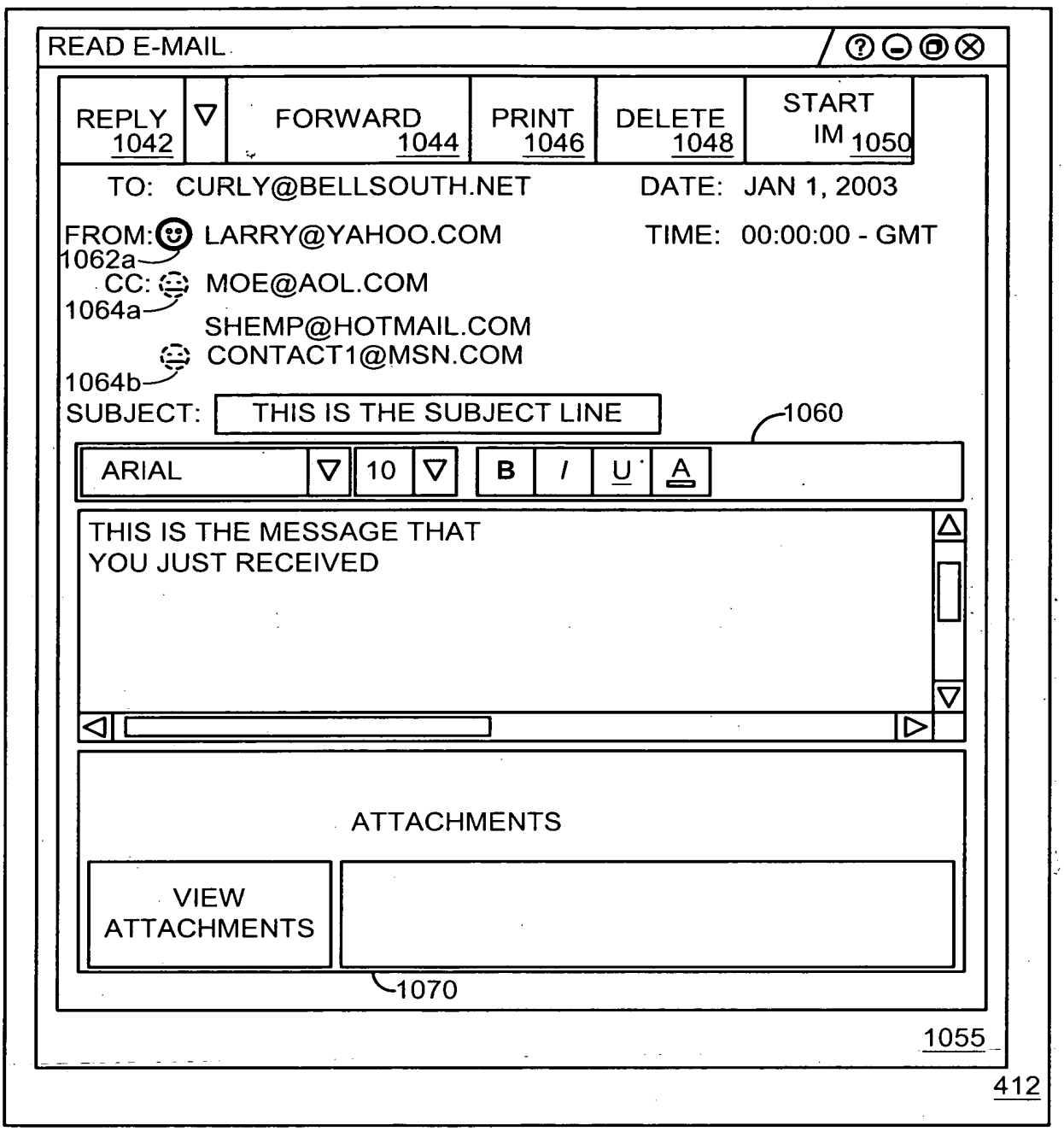
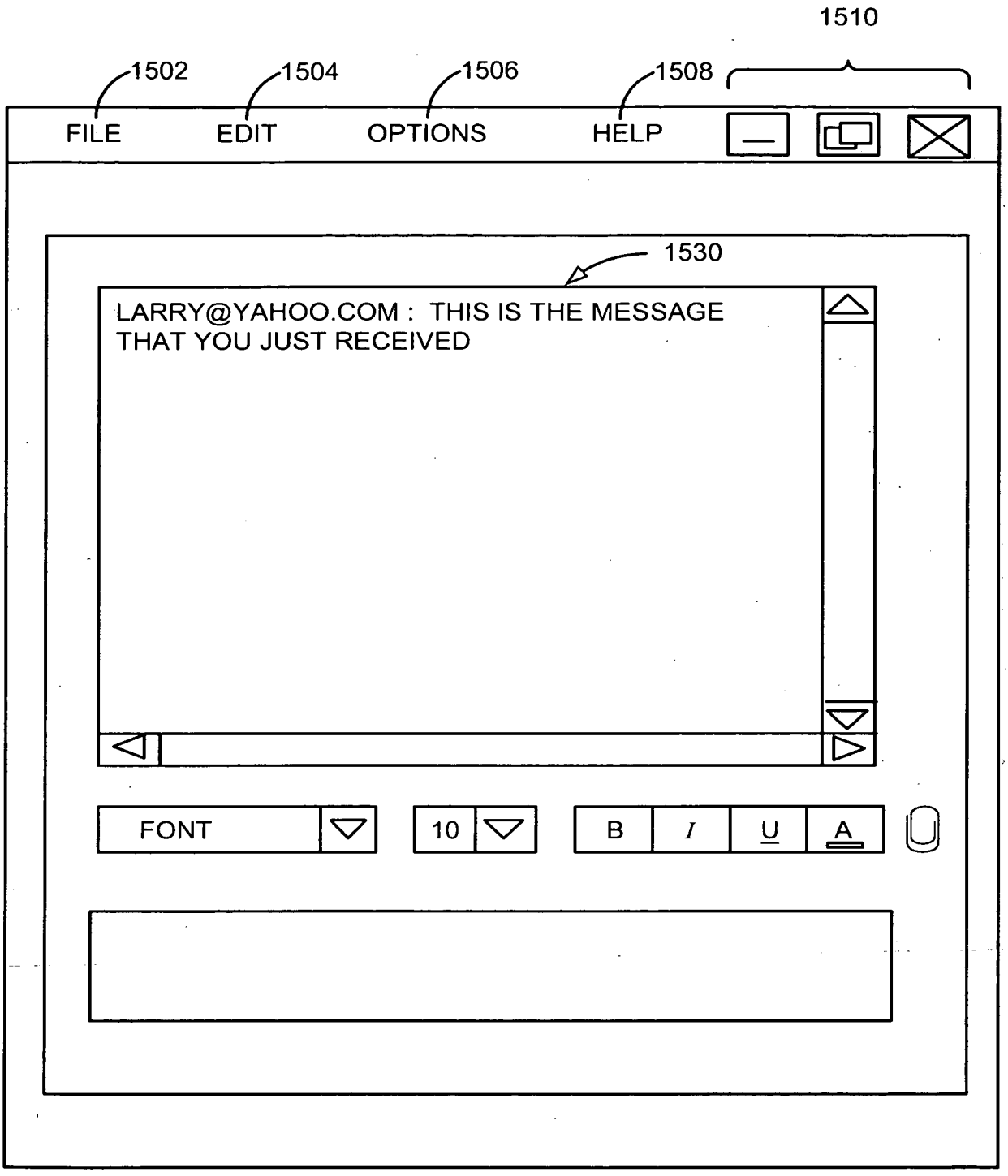

READ E-MAIL
REPLY 1042
FORWARD 1044
PRINT 1046
DELETE 1048
START IM 1050
TO: CURLY@BELLSOUTH.NET
DATE: JAN 1, 2003
FROM: LARRY@YAHOO.COM
TIME: 00:00:00 - GMT
1062a
CC: MOE@AOL.COM
1064a
SHEMP@HOTMAIL.COM
CONTACT1@MSN.COM
1064b
SUBJECT: THIS IS THE SUBJECT LINE
1060
ARIAL
10
B
I
U
A
THIS IS THE MESSAGE THAT
YOU JUST RECEIVED
ATTACHMENTS
VIEW ATTACHMENTS
1070
1055
412

FIG. 10A


1510
1502
1504
1506
1508
FILE
EDIT
OPTIONS
HELP
1530
LARRY@YAHOO.COM : THIS IS THE MESSAGE
THAT YOU JUST RECEIVED
FONT
10
B
I
U
A

614

FIG. 10B

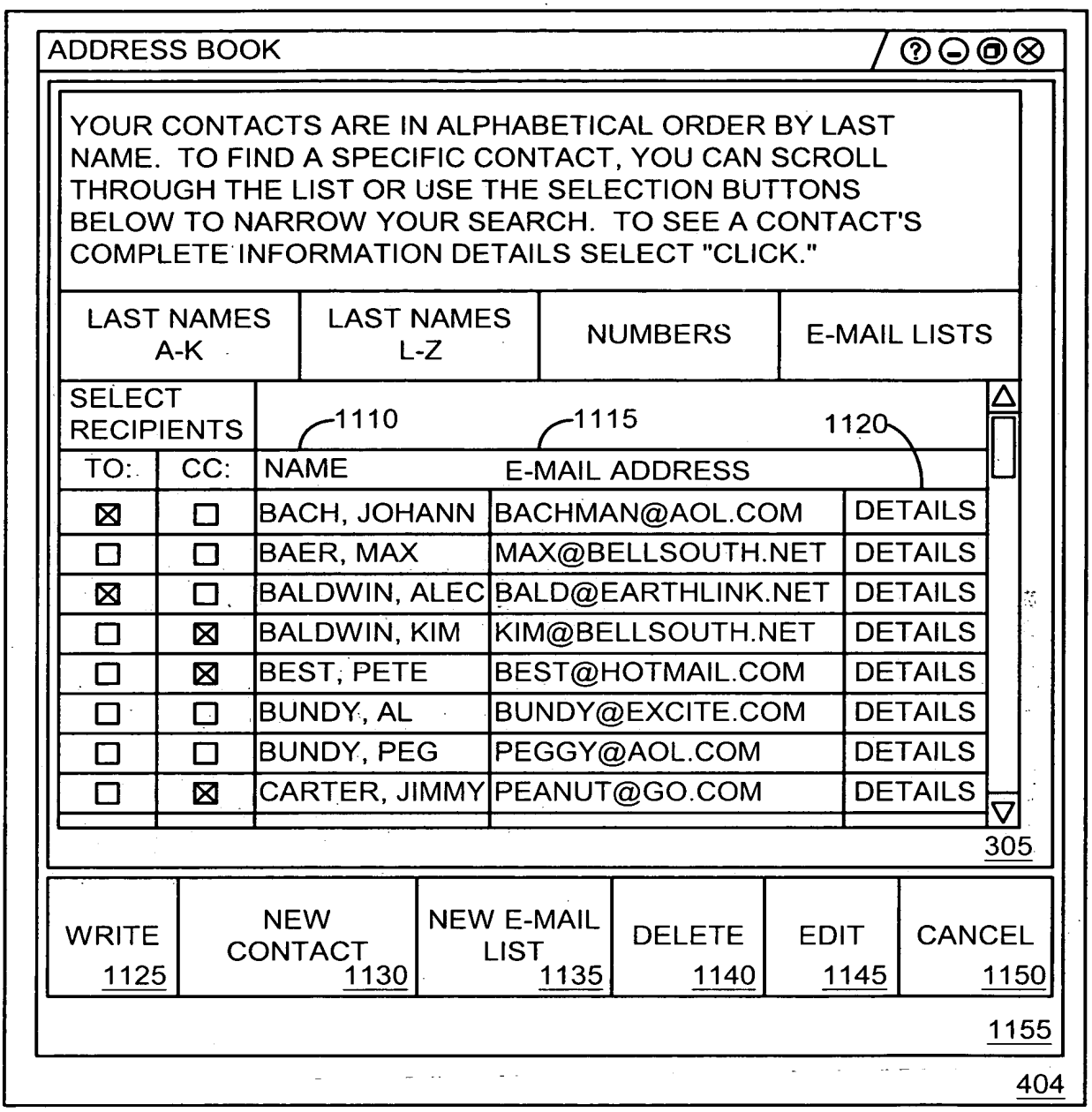

ADDRESS BOOK
YOUR CONTACTS ARE IN ALPHABETICAL ORDER BY LAST NAME. TO FIND A SPECIFIC CONTACT, YOU CAN SCROLL THROUGH THE LIST OR USE THE SELECTION BUTTONS BELOW TO NARROW YOUR SEARCH. TO SEE A CONTACT'S COMPLETE INFORMATION DETAILS SELECT "CLICK."
LAST NAMES A-K
LAST NAMES L-Z
NUMBERS
E-MAIL LISTS
SELECT RECIPIENTS
1110
1115
1120
TO:
CC:
NAME
E-MAIL ADDRESS
BACH, JOHANN BACHMAN@AOL.COM DETAILS
BAER, MAX MAX@BELLSOUTH.NET DETAILS
BALDWIN, ALEC BALD@EARTHLINK.NET DETAILS
BALDWIN, KIM KIM@BELLSOUTH.NET DETAILS
BEST, PETE BEST@HOTMAIL.COM DETAILS
BUNDY, AL BUNDY@EXCITE.COM DETAILS
BUNDY, PEG PEGGY@AOL.COM DETAILS
CARTER, JIMMY PEANUT@GO.COM DETAILS
305
WRITE 1125
NEW CONTACT 1130
NEW E-MAIL LIST 1135
DELETE 1140
EDIT 1145
CANCEL 1150
1155
404

FIG. 11

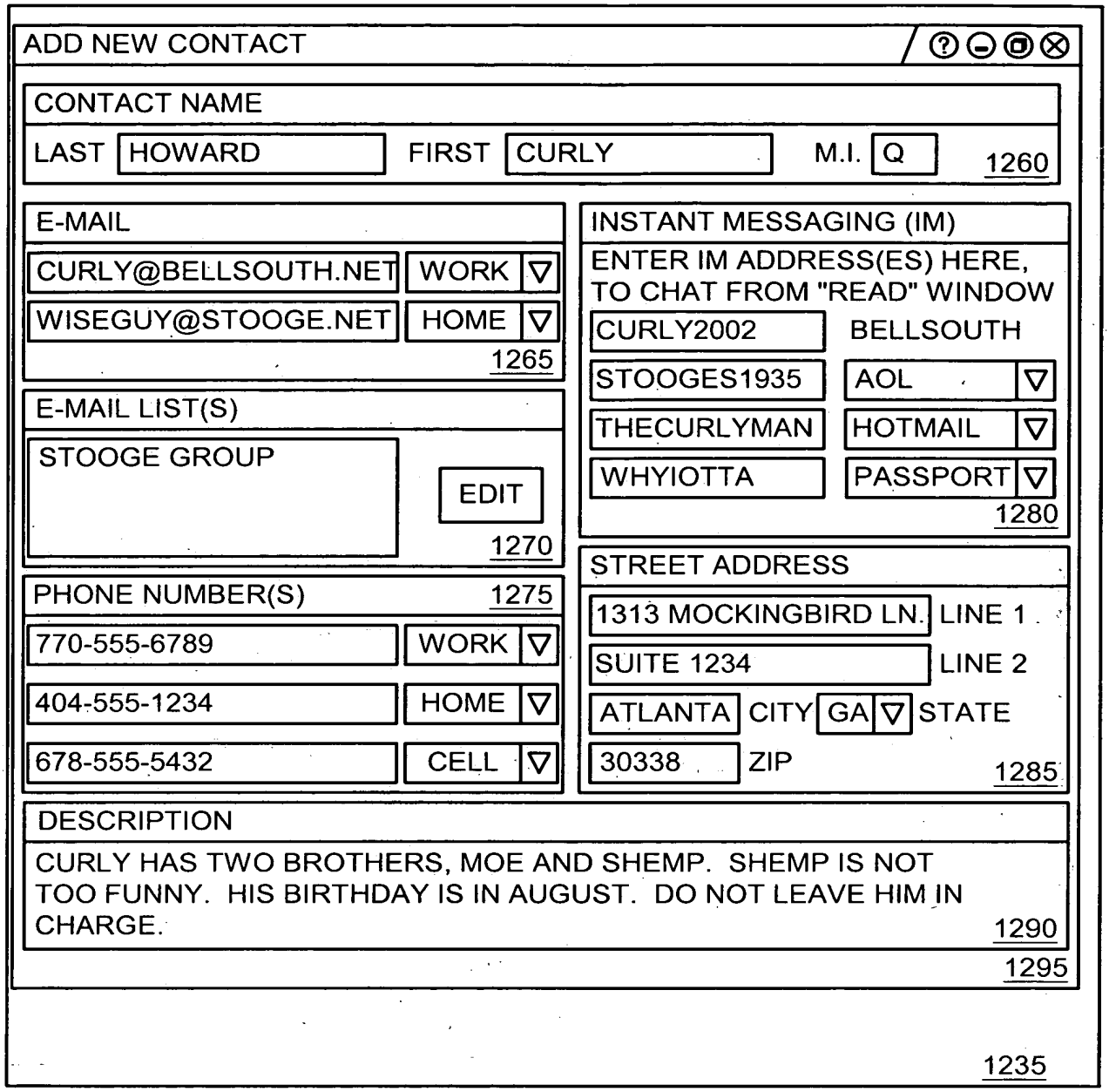
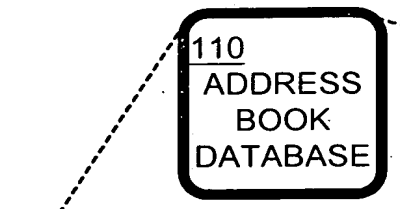

ADD NEW CONTACT
CONTACT NAME
LAST HOWARD
FIRST CURLY
M.I. Q
1260
E-MAIL
CURLY@BELLSOUTH.NET
WORK
WISEGUY@STOOGE.NET
HOME
1265
E-MAIL LIST(S)
STOOGE GROUP
EDIT
1270
PHONE NUMBER(S)
1275
770-555-6789
WORK
404-555-1234
HOME
678-555-5432
CELL
INSTANT MESSAGING (IM)
ENTER IM ADDRESS(ES) HERE, TO CHAT FROM "READ" WINDOW
CURLY2002
BELLSOUTH
STOOGES1935
AOL
THECURLYMAN
HOTMAIL
WHYIOTTA
PASSPORT
1280
STREET ADDRESS
1313 MOCKINGBIRD LN.
LINE 1
SUITE 1234
LINE 2
ATLANTA
CITY
GA
STATE
30338
ZIP
1285
DESCRIPTION
CURLY HAS TWO BROTHERS, MOE AND SHEMP. SHEMP IS NOT TOO FUNNY. HIS BIRTHDAY IS IN AUGUST. DO NOT LEAVE HIM IN CHARGE.
1290
1295
1235

FIG. 12



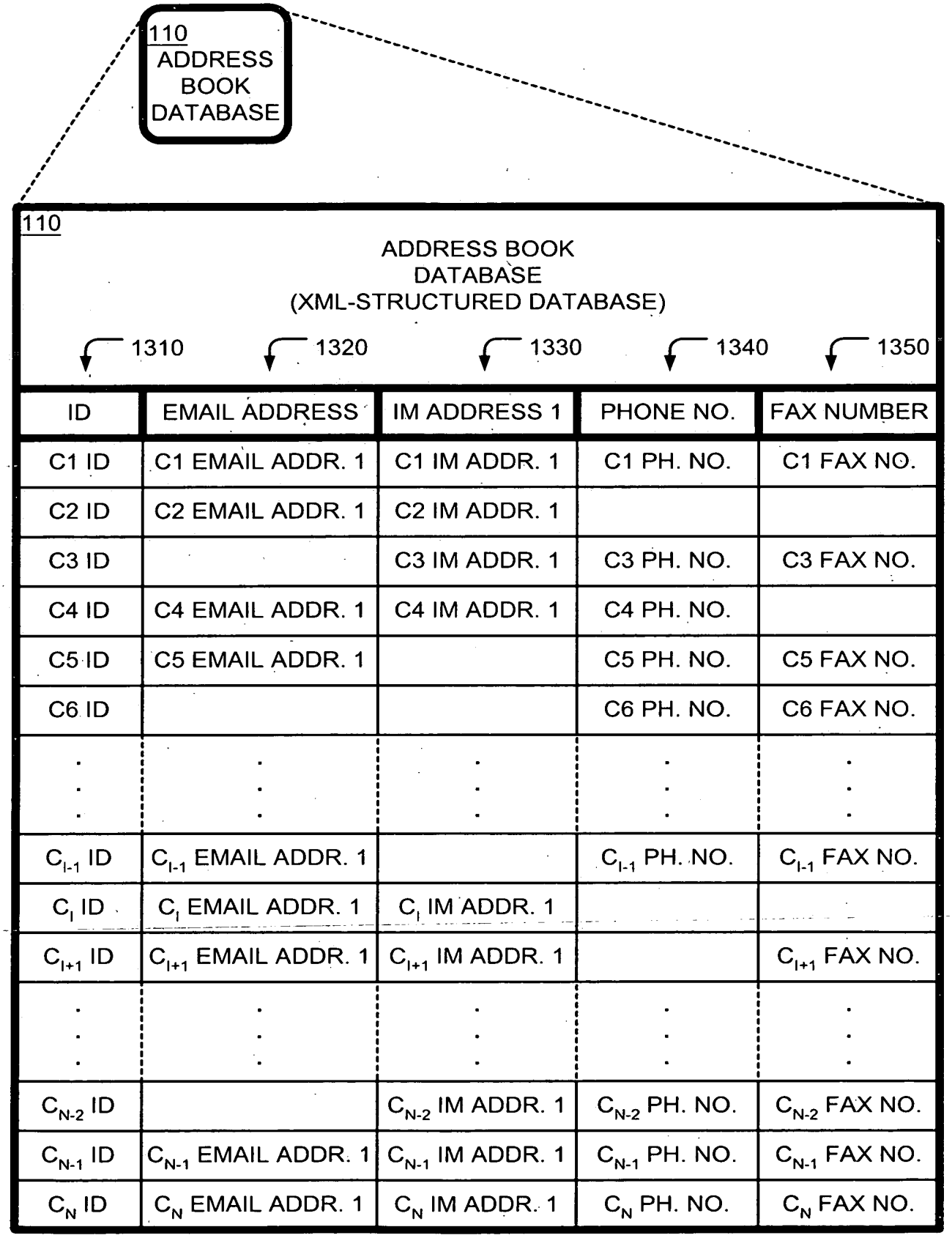
110

ADDRESS BOOK DATABASE

1310 1320 1330 1340 1350

ID	EMAIL ADDRESS	IM ADDRESS 1	IM ADDRESS 2	IM ADDRESS 3
C1 ID	C1 EMAIL ADDR. 1	C1 IM ADDR. 1	C1 ADDR. 2	C1 ADDR. 3
C2 ID	C2 EMAIL ADDR. 1	C2 IM ADDR. 1		
C3 ID		C3 IM ADDR. 1	C3 ADDR. 2	C3 ADDR. 3
C4 ID	C4 EMAIL ADDR. 1	C4 IM ADDR. 1	C4 ADDR. 2	
C5 ID	C5 EMAIL ADDR. 1			
C6 ID				
. . .	. . .	. . .	. . .	. . .
C_{I-1} ID	C_{I-1} EMAIL ADDR. 1			
C_I ID	C_I EMAIL ADDR. 1	C_I IM ADDR. 1		
C_{I+1} ID	C_{I+1} EMAIL ADDR. 1	C_{I+1} IM ADDR. 1		
. . .	. . .	. . .	. . .	. . .
C_{N-2} ID		C_{N-2} IM ADDR. 1	C_{N-2} ADDR. 2	C_{N-2} ADDR. 3
C_{N-1} ID	C_{N-1} EMAIL ADDR. 1	C_{N-1} IM ADDR. 1	C_{N-1} ADDR. 2	C_{N-1} ADDR. 3
C_N ID	C_N EMAIL ADDR. 1	C_N IM ADDR. 1	C_N ADDR. 2	C_N ADDR. 3

FIG. 13A



110

ADDRESS BOOK
DATABASE
(XML-STRUCTURED DATABASE)

1310 1320 1330 1340 1350

ID	EMAIL ADDRESS	IM ADDRESS 1	PHONE NO.	FAX NUMBER
C1 ID	C1 EMAIL ADDR. 1	C1 IM ADDR. 1	C1 PH. NO.	C1 FAX NO.
C2 ID	C2 EMAIL ADDR. 1	C2 IM ADDR. 1		
C3 ID		C3 IM ADDR. 1	C3 PH. NO.	C3 FAX NO.
C4 ID	C4 EMAIL ADDR. 1	C4 IM ADDR. 1	C4 PH. NO.	
C5 ID	C5 EMAIL ADDR. 1		C5 PH. NO.	C5 FAX NO.
C6 ID			C6 PH. NO.	C6 FAX NO.
. . .	. . .	. . .	. . .	. . .
C_{I-1} ID	C_{I-1} EMAIL ADDR. 1		C_{I-1} PH. NO.	C_{I-1} FAX NO.
C_I ID	C_I EMAIL ADDR. 1	C_I IM ADDR. 1		
C_{I+1} ID	C_{I+1} EMAIL ADDR. 1	C_{I+1} IM ADDR. 1		C_{I+1} FAX NO.
. . .	. . .	. . .	. . .	. . .
C_{N-2} ID		C_{N-2} IM ADDR. 1	C_{N-2} PH. NO.	C_{N-2} FAX NO.
C_{N-1} ID	C_{N-1} EMAIL ADDR. 1	C_{N-1} IM ADDR. 1	C_{N-1} PH. NO.	C_{N-1} FAX NO.
C_N ID	C_N EMAIL ADDR. 1	C_N IM ADDR. 1	C_N PH. NO.	C_N FAX NO.

FIG. 13B

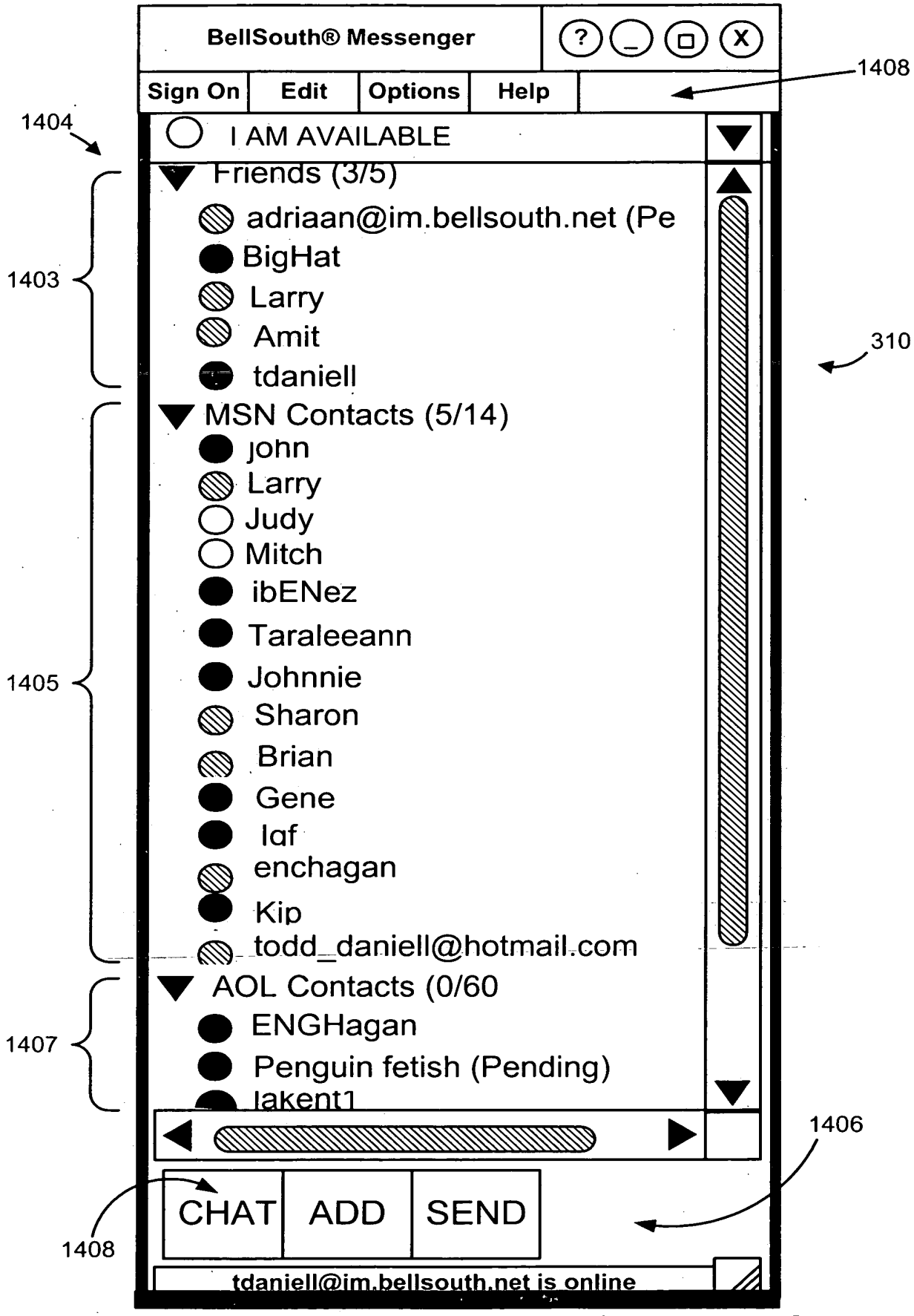
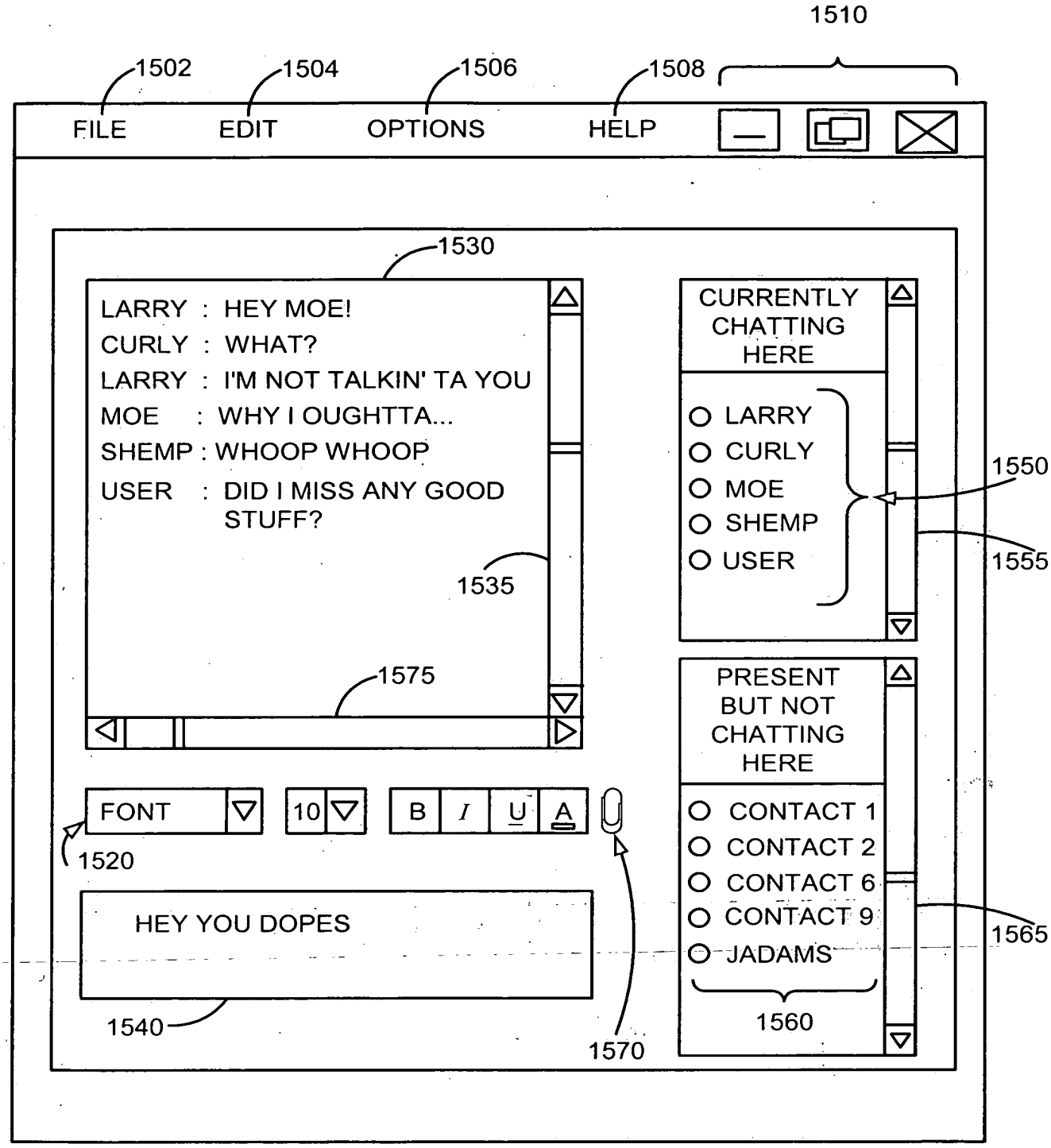

BellSouth® Messenger
Sign On
Edit
Options
Help
1408
1404
I AM AVAILABLE
Friends (3/5)
adriaan@im.bellsouth.net (Pe
BigHat
Larry
Amit
tdaniell
1403
310
MSN Contacts (5/14)
john
Larry
Judy
Mitch
ibENez
Taraleeann
Johnnie
Sharon
Brian
Gene
Iqf
enchagan
Kip
todd_daniell@hotmail.com
1405
AOL Contacts (0/60
ENGHagan
Penguin fetish (Pending)
Iakent1
1407
1406
CHAT
ADD
SEND
1408
tdaniell@im.bellsouth.net is online

FIG. 14


1510
1502
1504
1506
1508
FILE
EDIT
OPTIONS
HELP
1530
LARRY : HEY MOE!
CURLY : WHAT?
LARRY : I'M NOT TALKIN' TA YOU
MOE : WHY I OUGHTTA...
SHEMP : WHOOP WHOOP
USER : DID I MISS ANY GOOD STUFF?
1535
1575
CURRENTLY CHATTING HERE
LARRY
CURLY
MOE
SHEMP
USER
1550
1555
PRESENT BUT NOT CHATTING HERE
CONTACT 1
CONTACT 2
CONTACT 6
CONTACT 9
JADAMS
1560
1565
FONT
10
B
I
U
A
1520
HEY YOU DOPES
1540
1570

614

FIG. 15

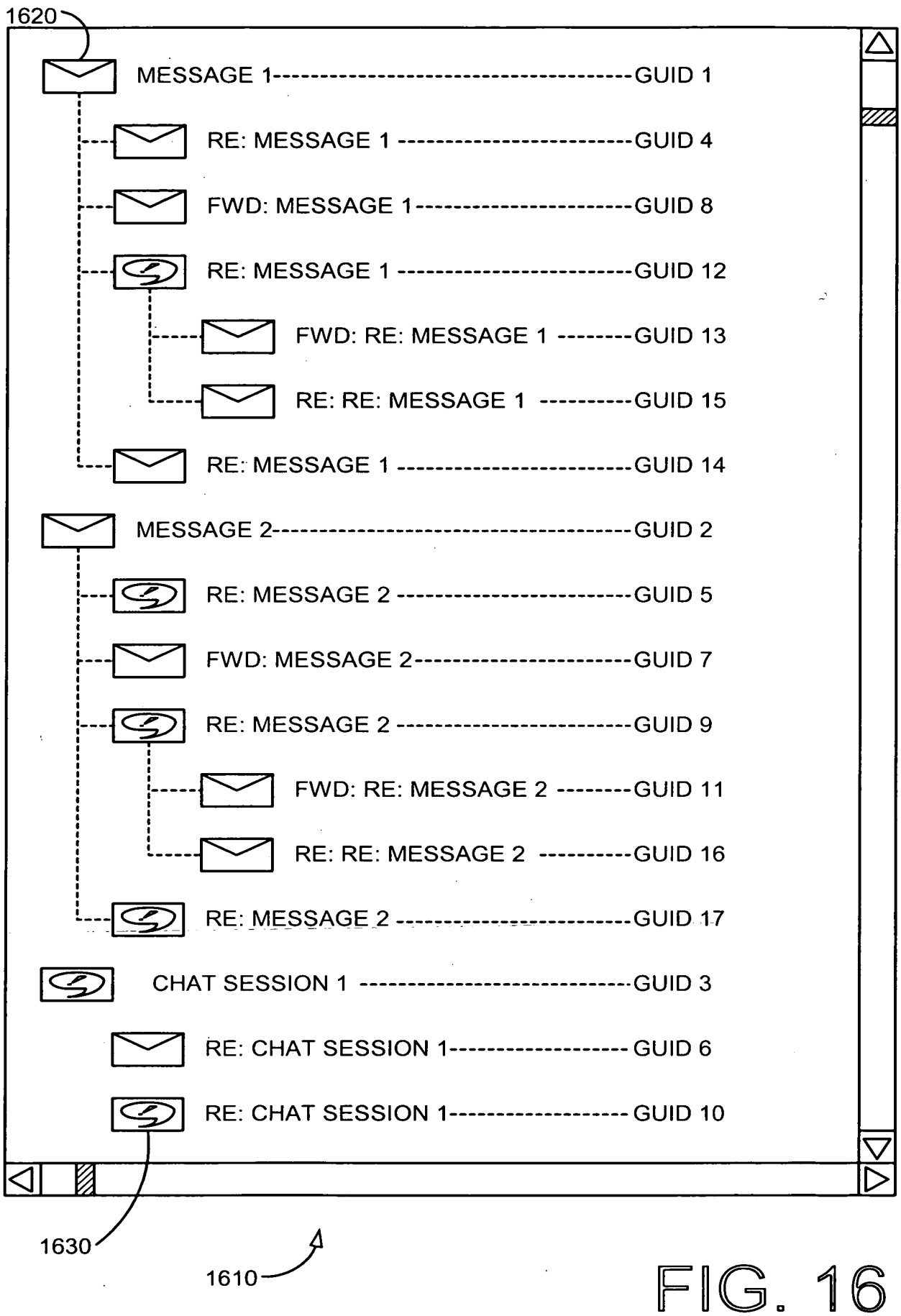

1620
MESSAGE 1----------GUID 1
RE: MESSAGE 1 ----------GUID 4
FWD: MESSAGE 1----------GUID 8
RE: MESSAGE 1 ----------GUID 12
FWD: RE: MESSAGE 1 --------GUID 13
RE: RE: MESSAGE 1 ---------GUID 15
RE: MESSAGE 1 ----------GUID 14
MESSAGE 2----------GUID 2
RE: MESSAGE 2 ----------GUID 5
FWD: MESSAGE 2----------GUID 7
RE: MESSAGE 2 ----------GUID 9
FWD: RE: MESSAGE 2 --------GUID 11
RE: RE: MESSAGE 2 ---------GUID 16
RE: MESSAGE 2 ----------GUID 17
CHAT SESSION 1 ----------GUID 3
RE: CHAT SESSION 1---------- GUID 6
RE: CHAT SESSION 1---------- GUID 10
1630
1610

FIG. 16

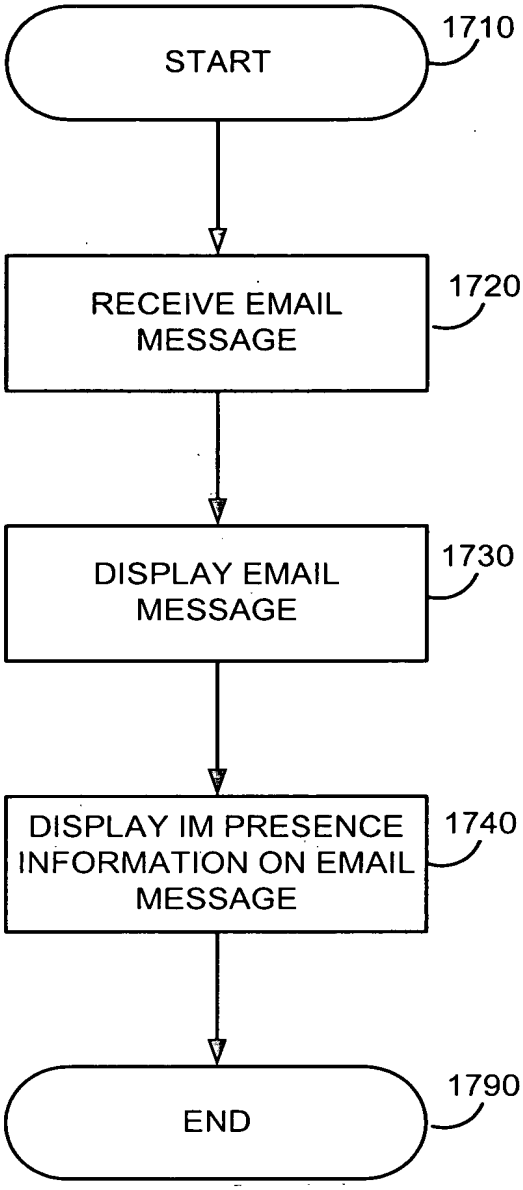

START
1710
RECEIVE EMAIL MESSAGE
1720
DISPLAY EMAIL MESSAGE
1730
DISPLAY IM PRESENCE INFORMATION ON EMAIL MESSAGE
1740
END
1790

FIG. 17

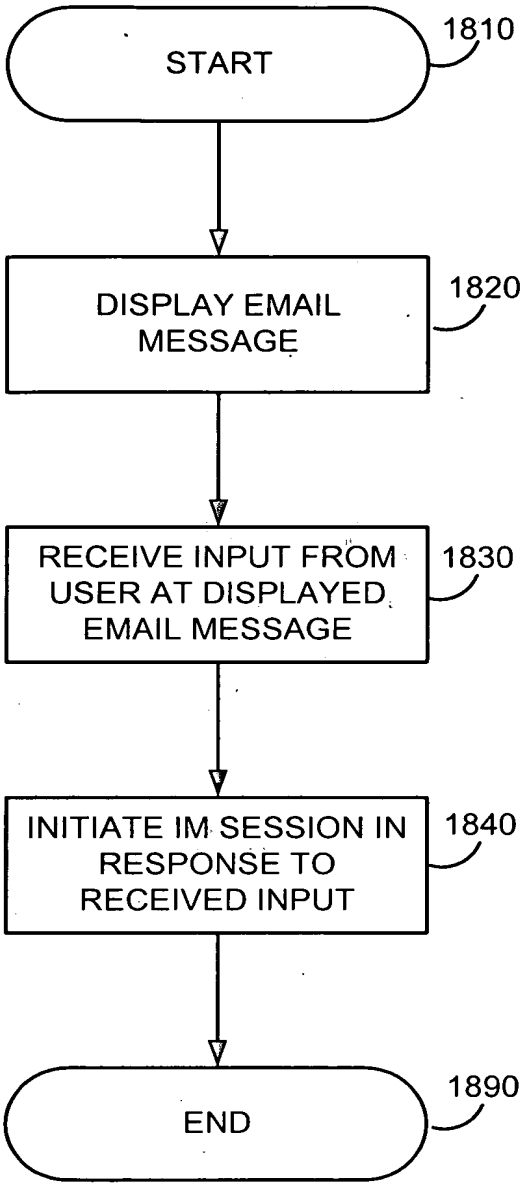

START
1810
DISPLAY EMAIL MESSAGE
1820
RECEIVE INPUT FROM USER AT DISPLAYED EMAIL MESSAGE
1830
INITIATE IM SESSION IN RESPONSE TO RECEIVED INPUT
1840
END
1890

FIG. 18A

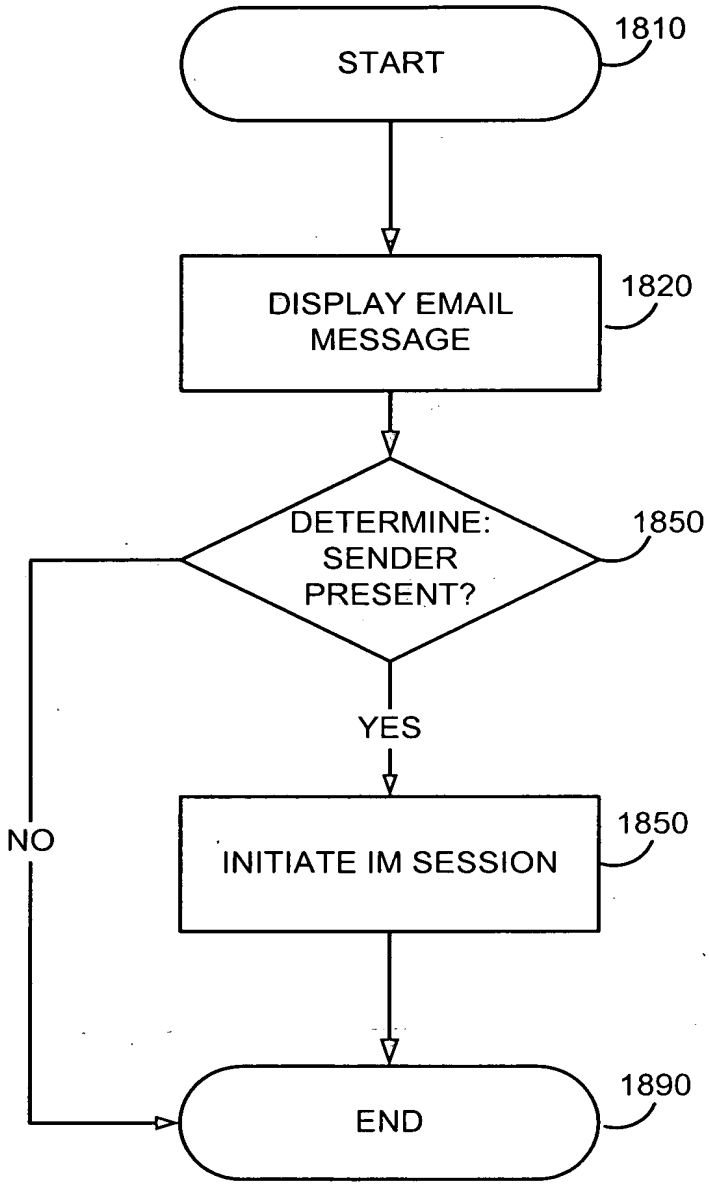

START
1810
DISPLAY EMAIL MESSAGE
1820
DETERMINE: SENDER PRESENT?
1850
YES
NO
INITIATE IM SESSION
1850
END
1890

FIG. 18B

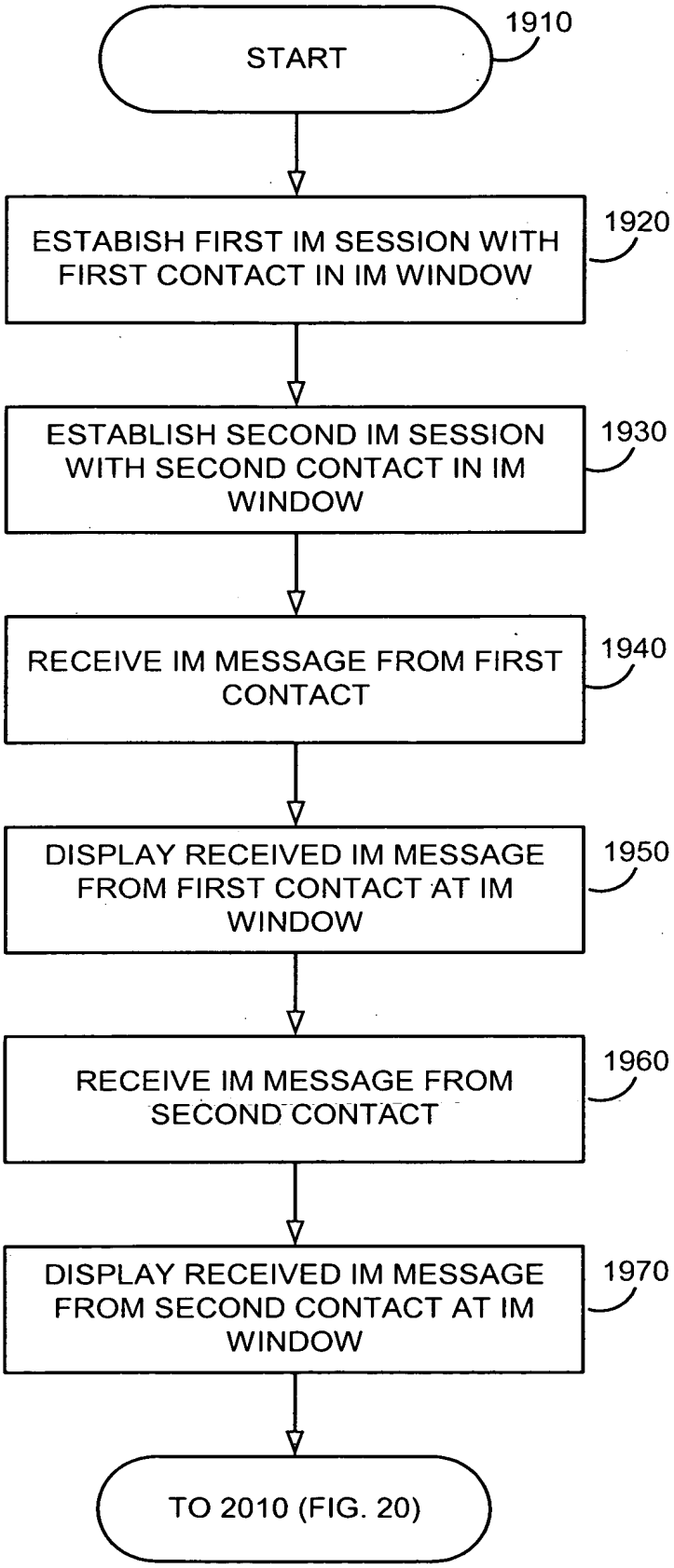

START
1910
ESTABISH FIRST IM SESSION WITH FIRST CONTACT IN IM WINDOW
1920
ESTABLISH SECOND IM SESSION WITH SECOND CONTACT IN IM WINDOW
1930
RECEIVE IM MESSAGE FROM FIRST CONTACT
1940
DISPLAY RECEIVED IM MESSAGE FROM FIRST CONTACT AT IM WINDOW
1950
RECEIVE IM MESSAGE FROM SECOND CONTACT
1960
DISPLAY RECEIVED IM MESSAGE FROM SECOND CONTACT AT IM WINDOW
1970
TO 2010 (FIG. 20)

FIG. 19

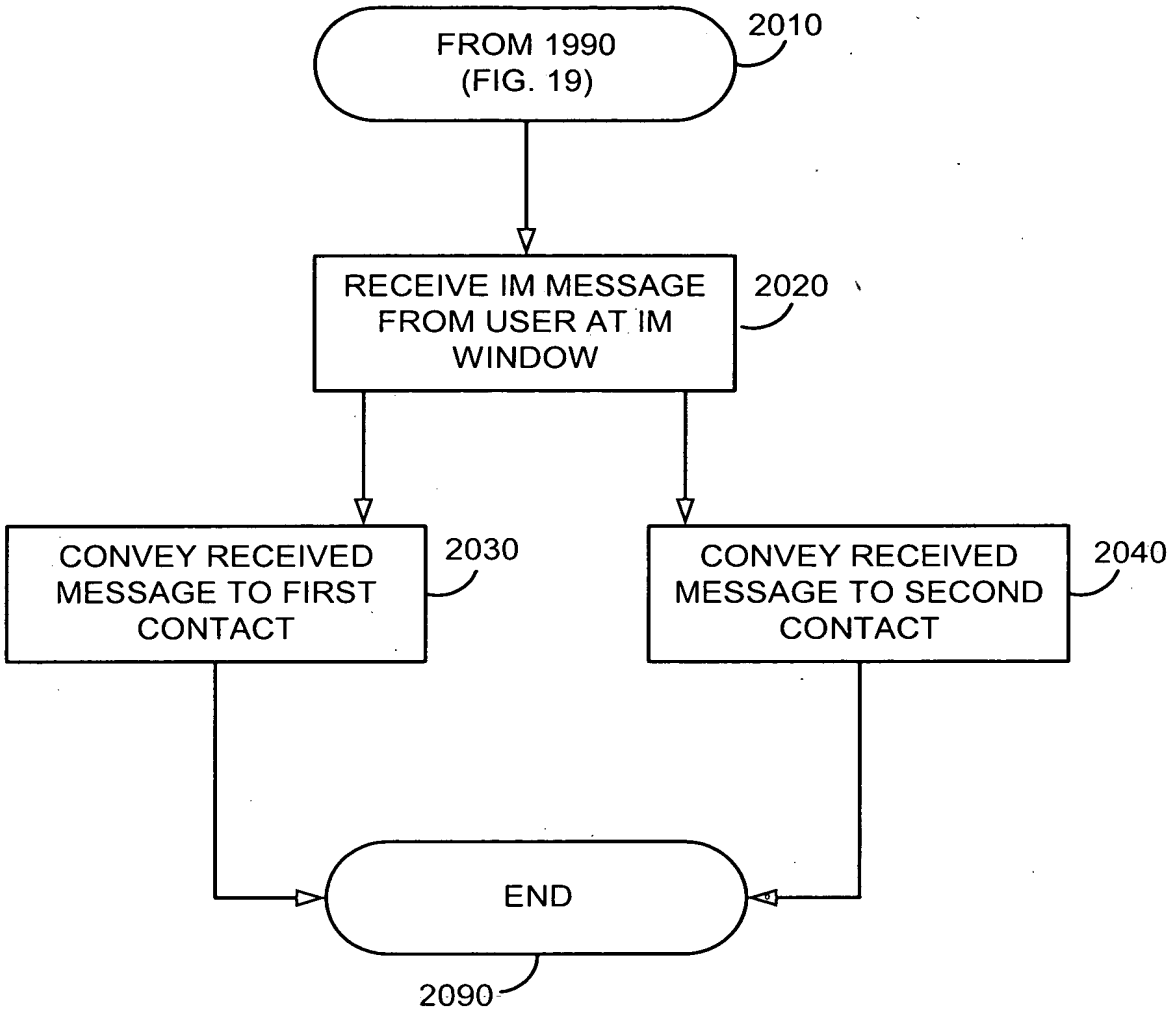

FROM 1990
(FIG. 19)
2010
RECEIVE IM MESSAGE FROM USER AT IM WINDOW
2020
CONVEY RECEIVED MESSAGE TO FIRST CONTACT
2030
CONVEY RECEIVED MESSAGE TO SECOND CONTACT
2040
END
2090

FIG. 20

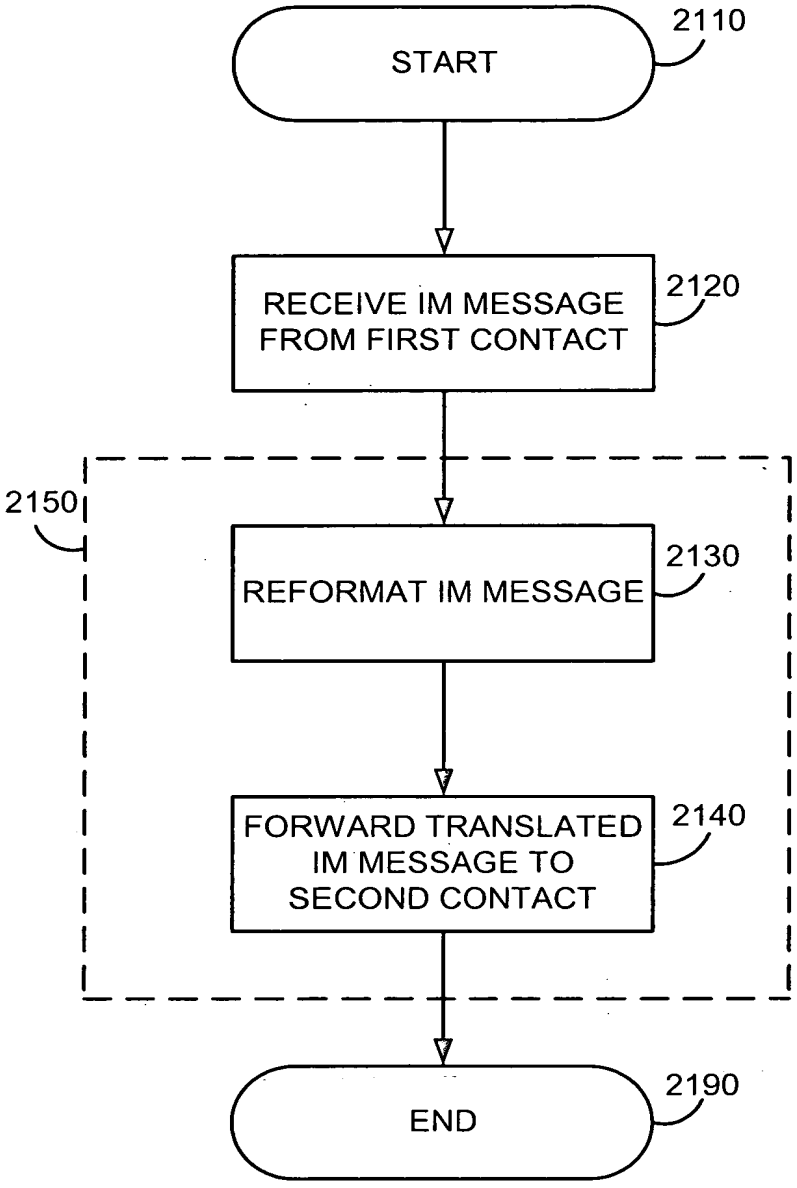

START
2110
RECEIVE IM MESSAGE FROM FIRST CONTACT
2120
2150
REFORMAT IM MESSAGE
2130
FORWARD TRANSLATED IM MESSAGE TO SECOND CONTACT
2140
END
2190

FIG. 21

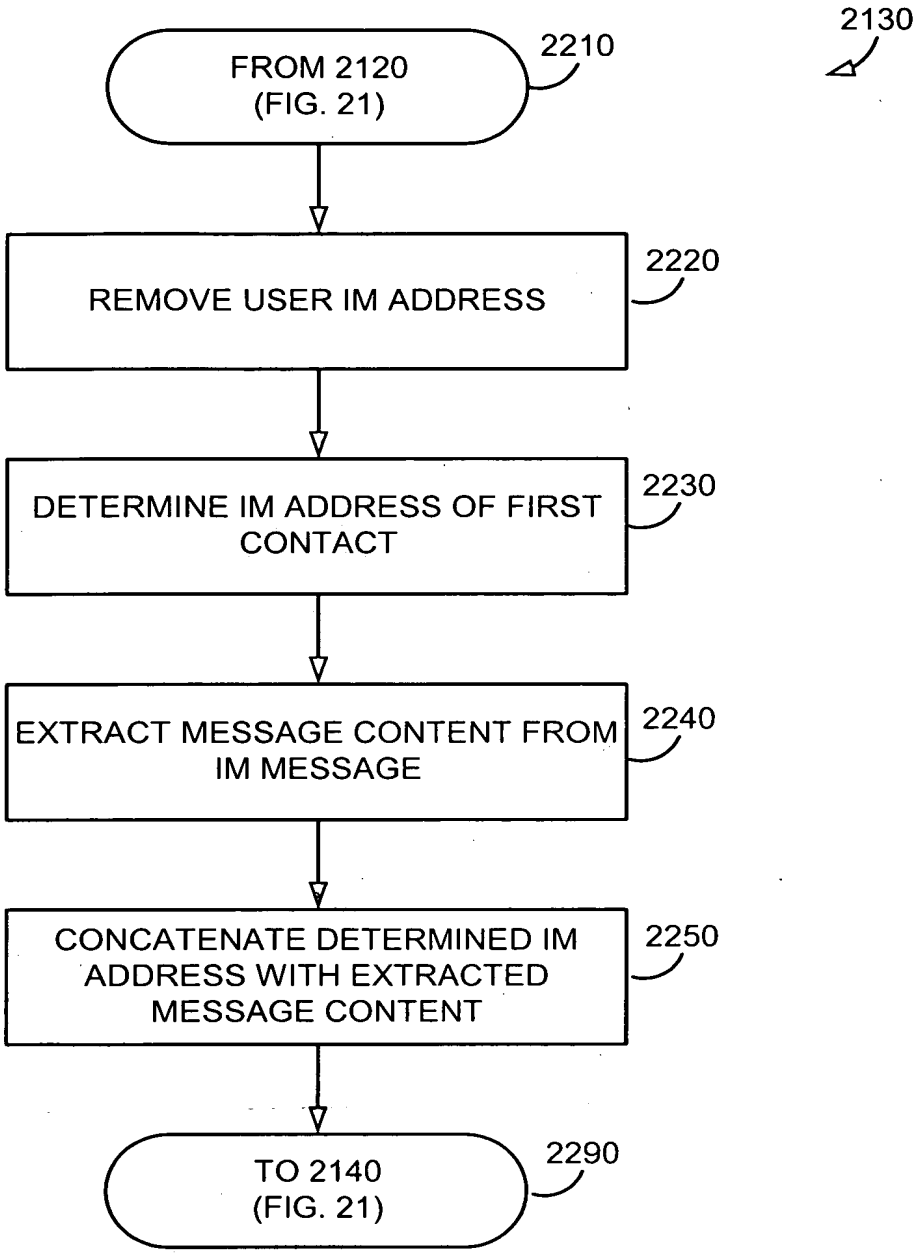

2130
FROM 2120
(FIG. 21)
2210
REMOVE USER IM ADDRESS
2220
DETERMINE IM ADDRESS OF FIRST CONTACT
2230
EXTRACT MESSAGE CONTENT FROM IM MESSAGE
2240
CONCATENATE DETERMINED IM ADDRESS WITH EXTRACTED MESSAGE CONTENT
2250
TO 2140
(FIG. 21)
2290

FIG. 22

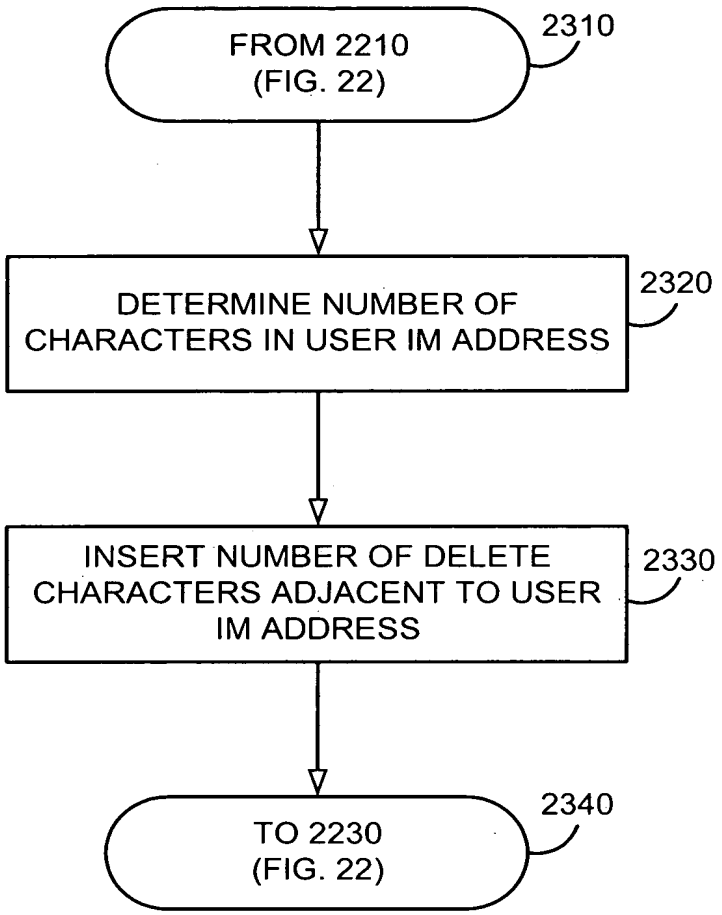

FROM 2210
(FIG. 22)
2310
DETERMINE NUMBER OF CHARACTERS IN USER IM ADDRESS
2320
INSERT NUMBER OF DELETE CHARACTERS ADJACENT TO USER IM ADDRESS
2330
TO 2230
(FIG. 22)
2340

FIG. 23

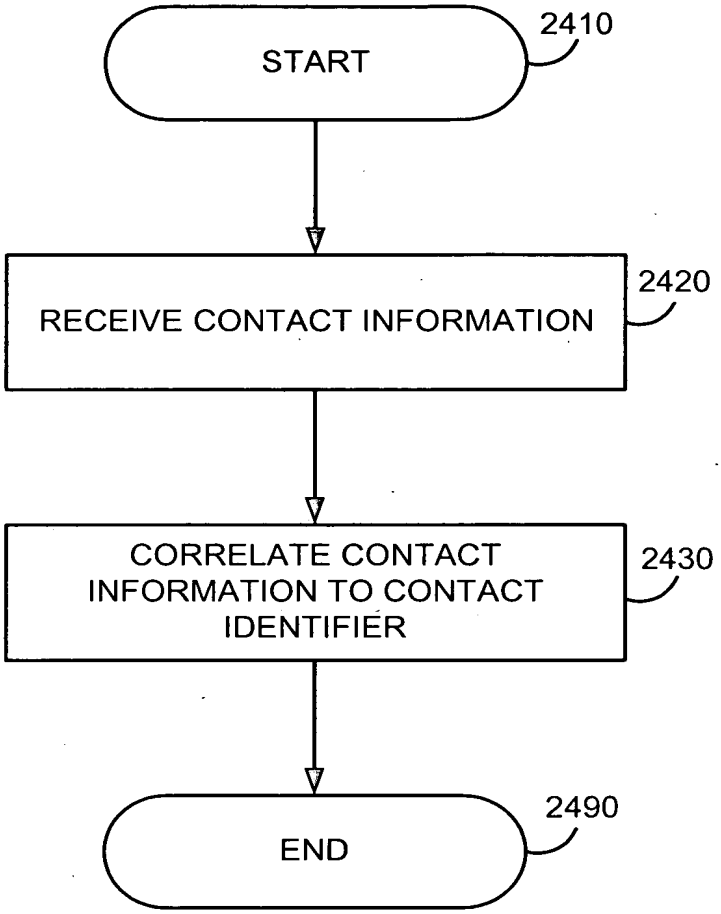

START
2410
RECEIVE CONTACT INFORMATION
2420
CORRELATE CONTACT INFORMATION TO CONTACT IDENTIFIER
2430
END
2490

FIG. 24

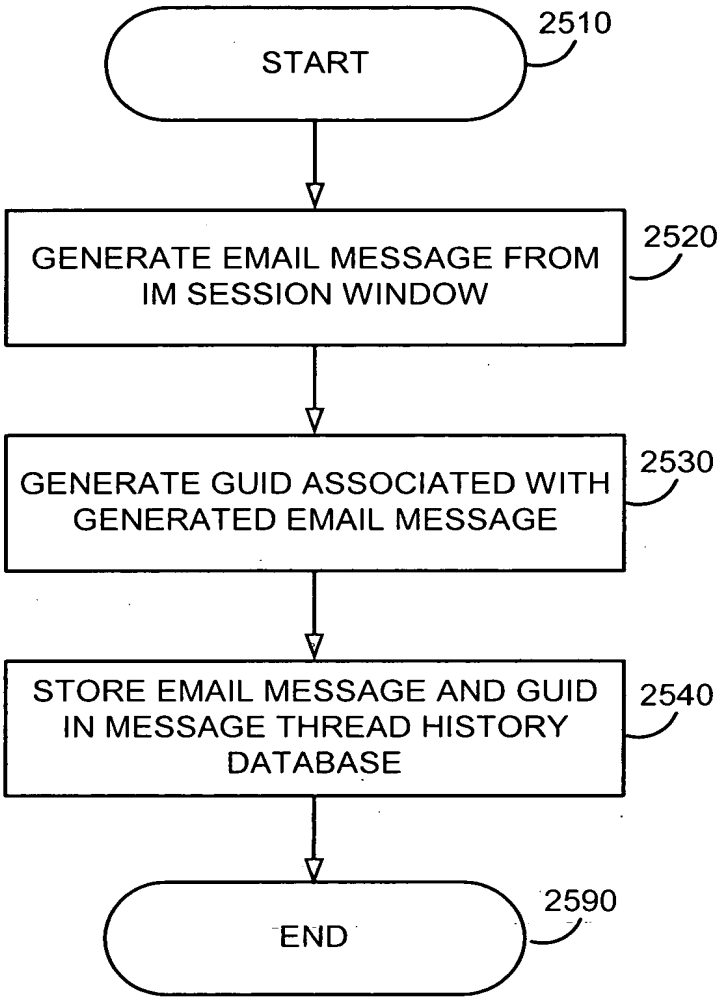

START
2510
GENERATE EMAIL MESSAGE FROM IM SESSION WINDOW
2520
GENERATE GUID ASSOCIATED WITH GENERATED EMAIL MESSAGE
2530
STORE EMAIL MESSAGE AND GUID IN MESSAGE THREAD HISTORY DATABASE
2540
END
2590

FIG. 25

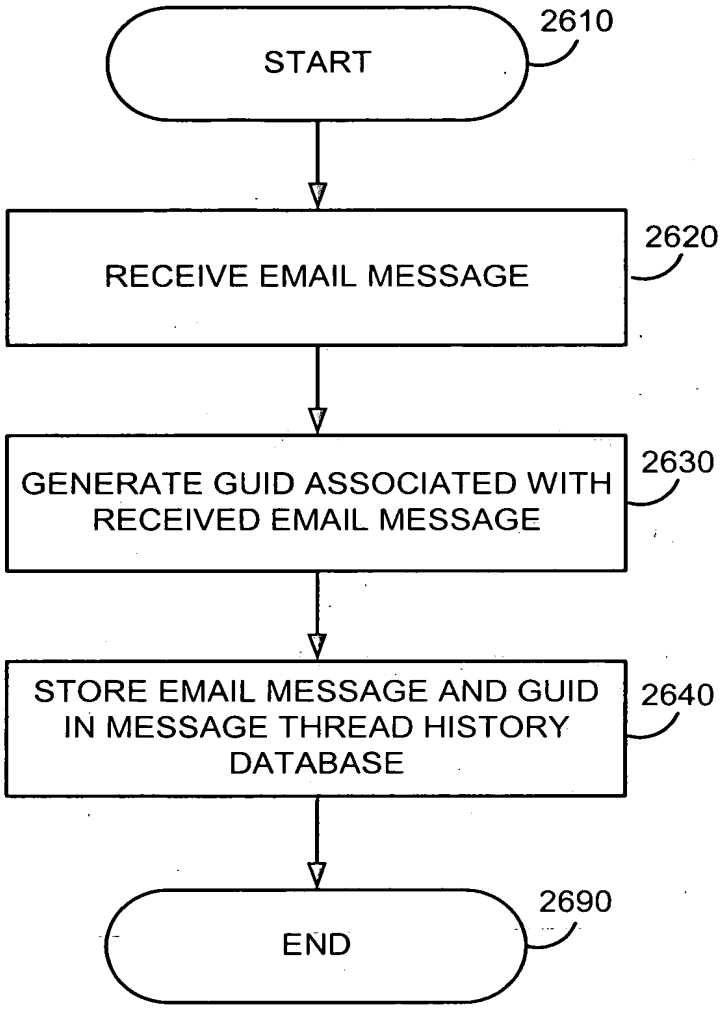

START
2610
RECEIVE EMAIL MESSAGE
2620
GENERATE GUID ASSOCIATED WITH RECEIVED EMAIL MESSAGE
2630
STORE EMAIL MESSAGE AND GUID IN MESSAGE THREAD HISTORY DATABASE
2640
END
2690

FIG. 26

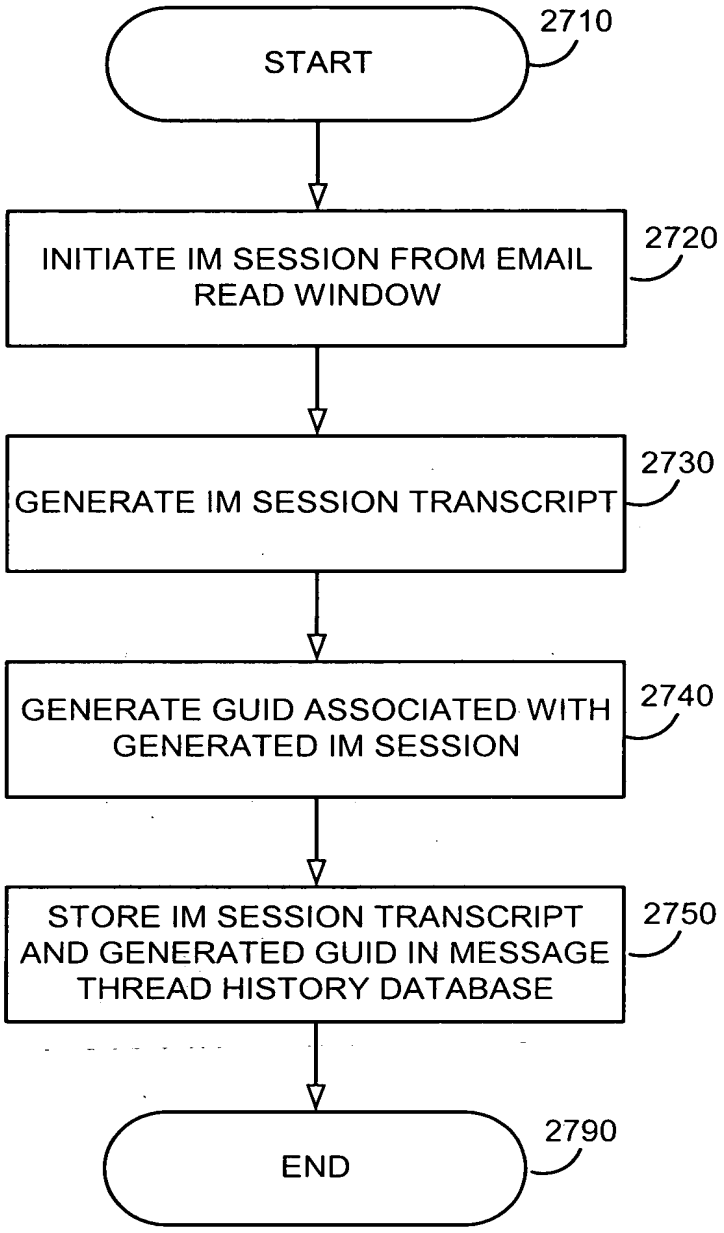

START
2710
INITIATE IM SESSION FROM EMAIL READ WINDOW
2720
GENERATE IM SESSION TRANSCRIPT
2730
GENERATE GUID ASSOCIATED WITH GENERATED IM SESSION
2740
STORE IM SESSION TRANSCRIPT AND GENERATED GUID IN MESSAGE THREAD HISTORY DATABASE
2750
END
2790

FIG. 27

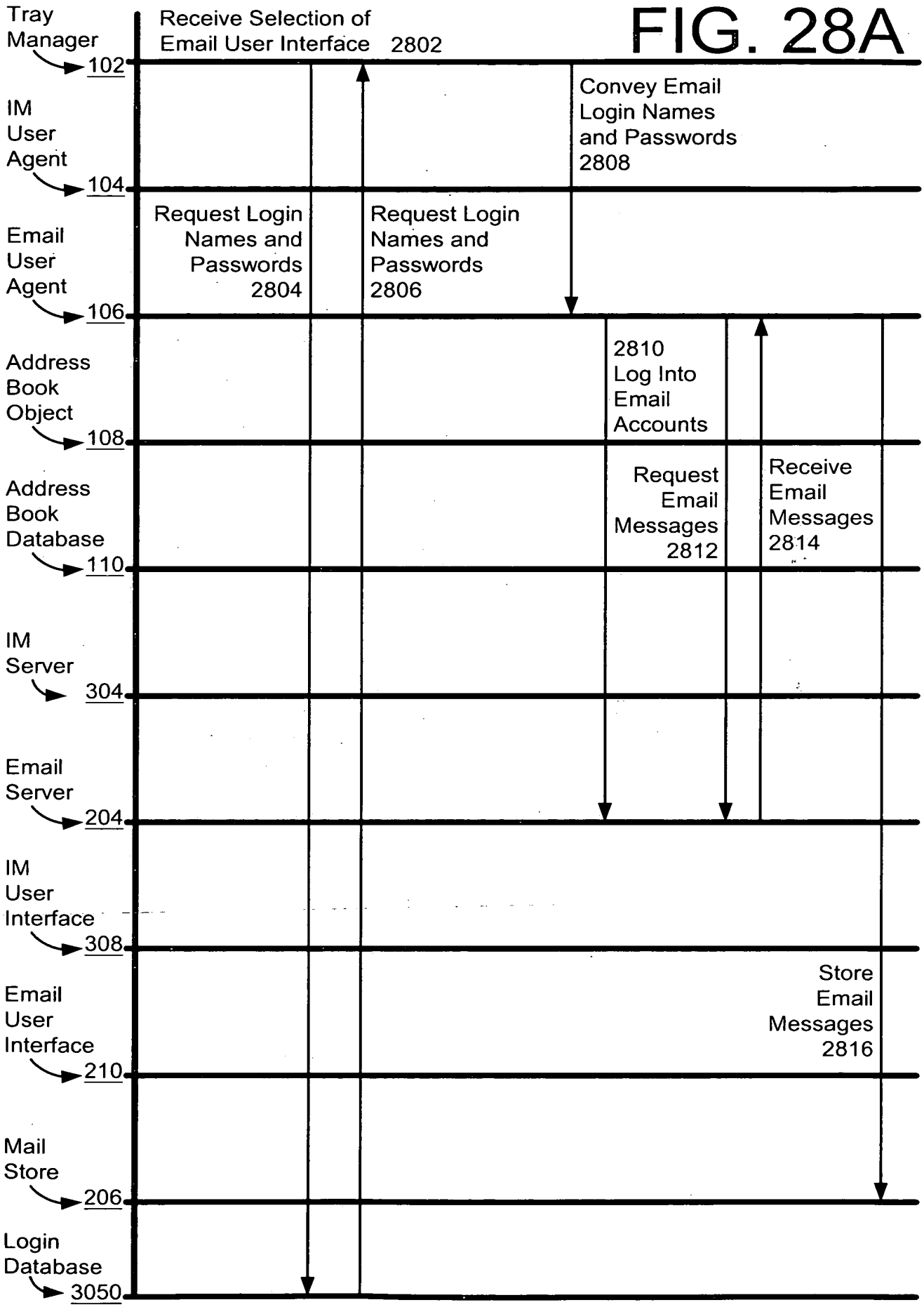
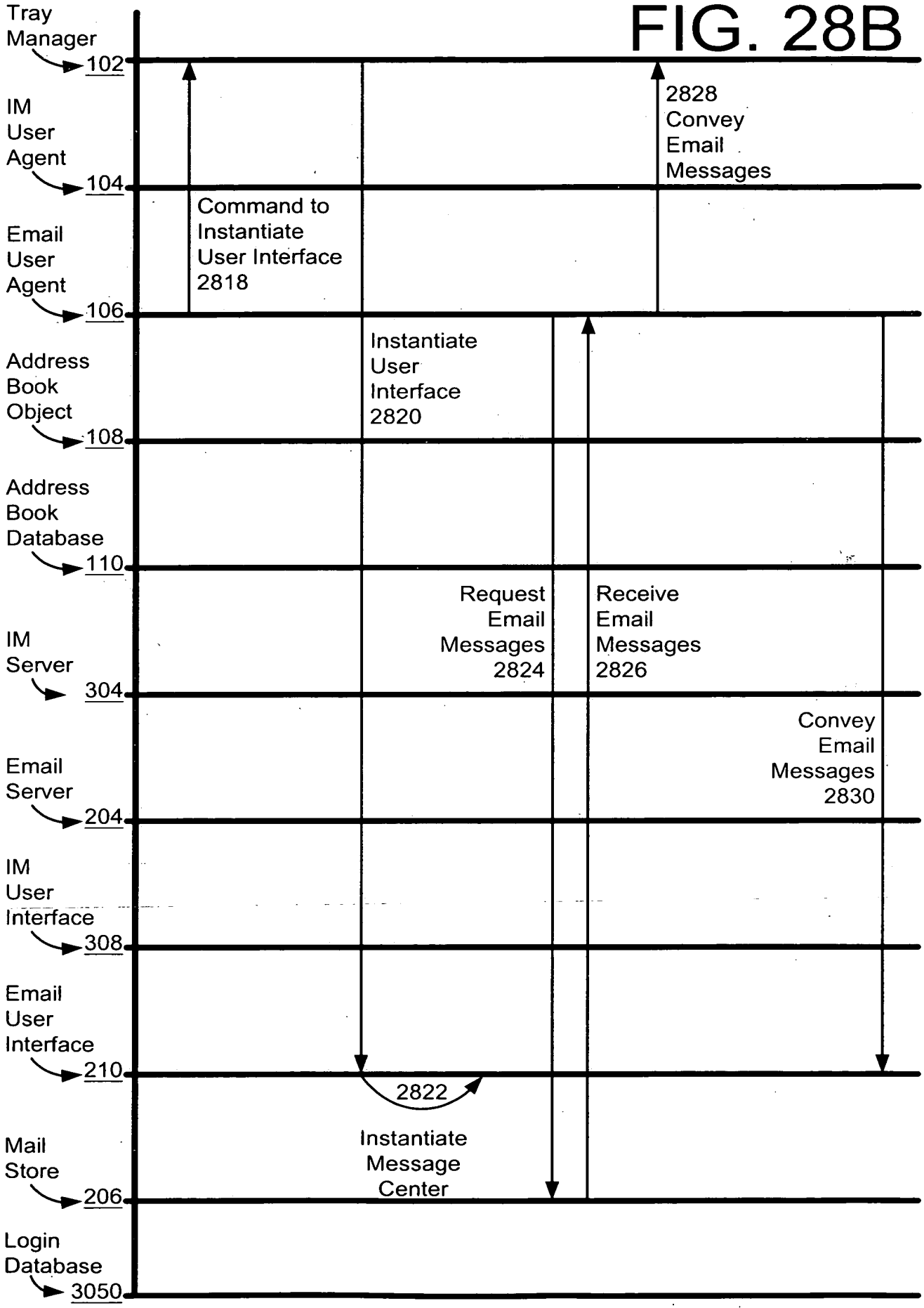

Tray Manager 102
IM User Agent 104
Email User Agent 106
Address Book Object 108
Address Book Database 110
IM Server 304
Email Server 204
IM User Interface 308
Email User Interface 210
Mail Store 206
Login Database 3050
Receive Selection of Email User Interface 2802
Request Login Names and Passwords 2804
Request Login Names and Passwords 2806
Convey Email Login Names and Passwords 2808
2810 Log Into Email Accounts
Request Email Messages 2812
Receive Email Messages 2814
Store Email Messages 2816

FIG. 28A

FIG. 28B


Tray Manager 102
IM User Agent 104
Email User Agent 106
Address Book Object 108
Address Book Database 110
IM Server 304
Email Server 204
IM User Interface 308
Email User Interface 210
Mail Store 206
Login Database 3050
Command to Instantiate User Interface 2818
2828 Convey Email Messages
Instantiate User Interface 2820
Request Email Messages 2824
Receive Email Messages 2826
Convey Email Messages 2830
2822
Instantiate Message Center

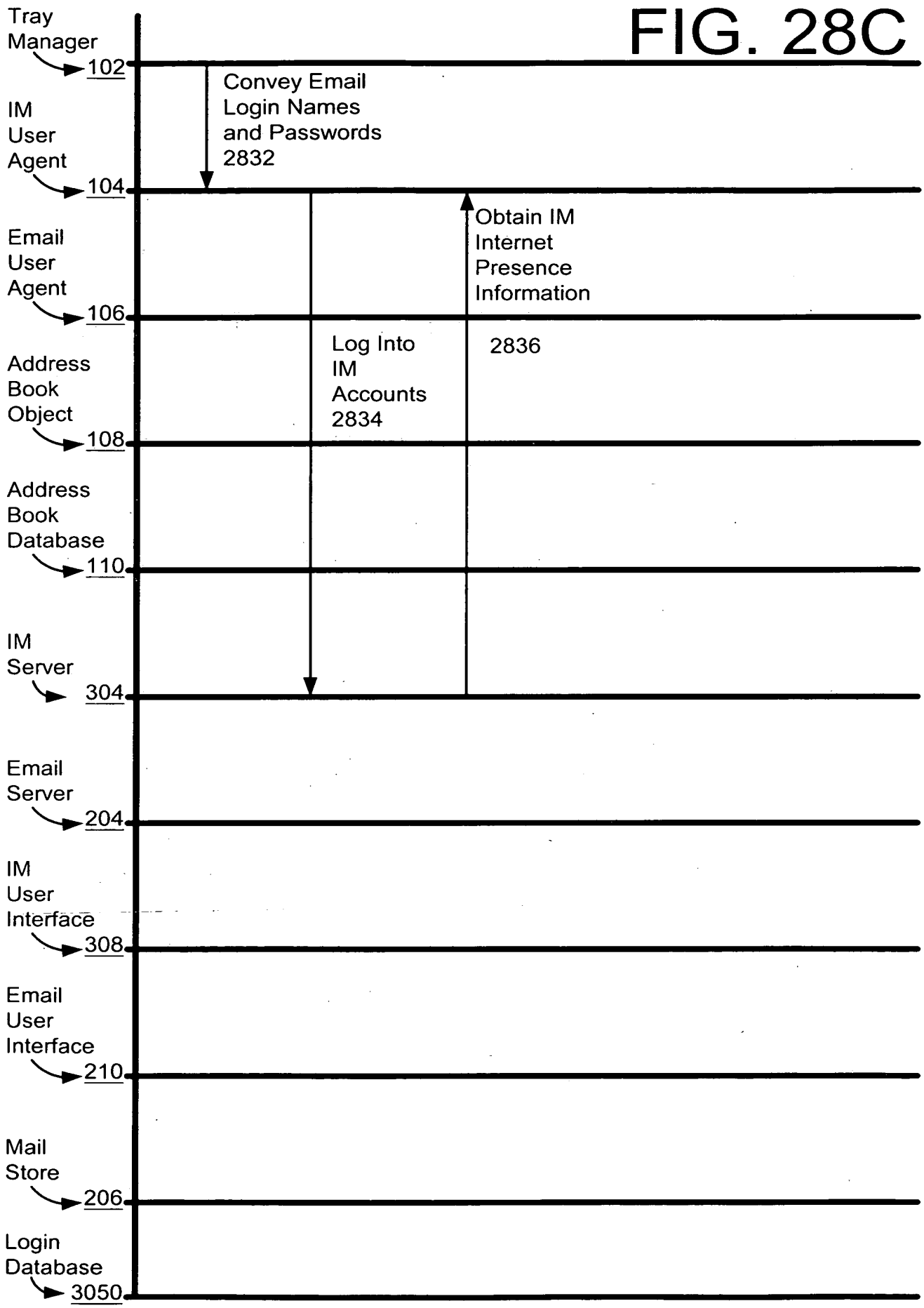

Tray Manager 102
IM User Agent 104
Email User Agent 106
Address Book Object 108
Address Book Database 110
IM Server 304
Email Server 204
IM User Interface 308
Email User Interface 210
Mail Store 206
Login Database 3050
Convey Email Login Names and Passwords 2832
Log Into IM Accounts 2834
Obtain IM Internet Presence Information 2836

FIG. 28C

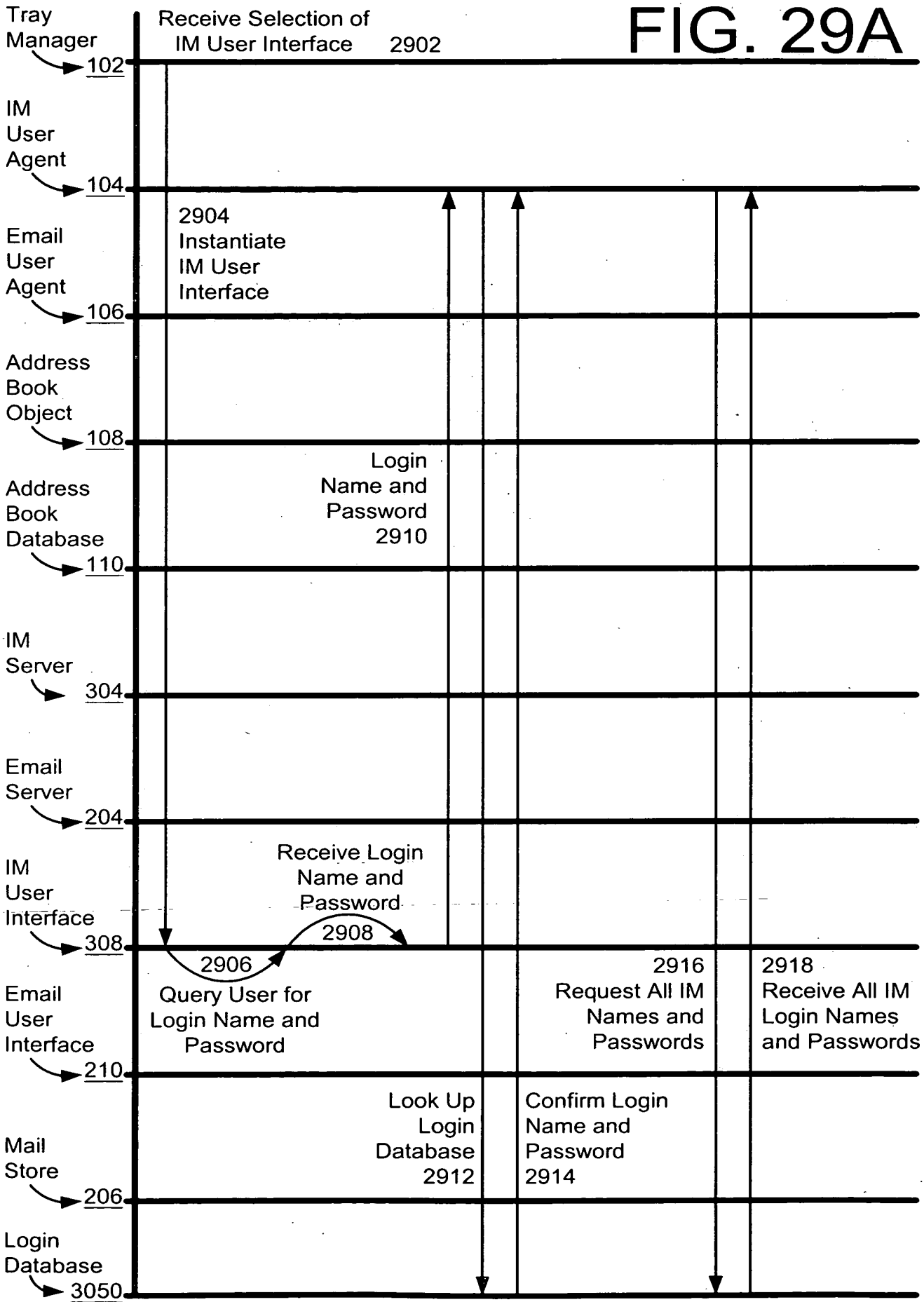
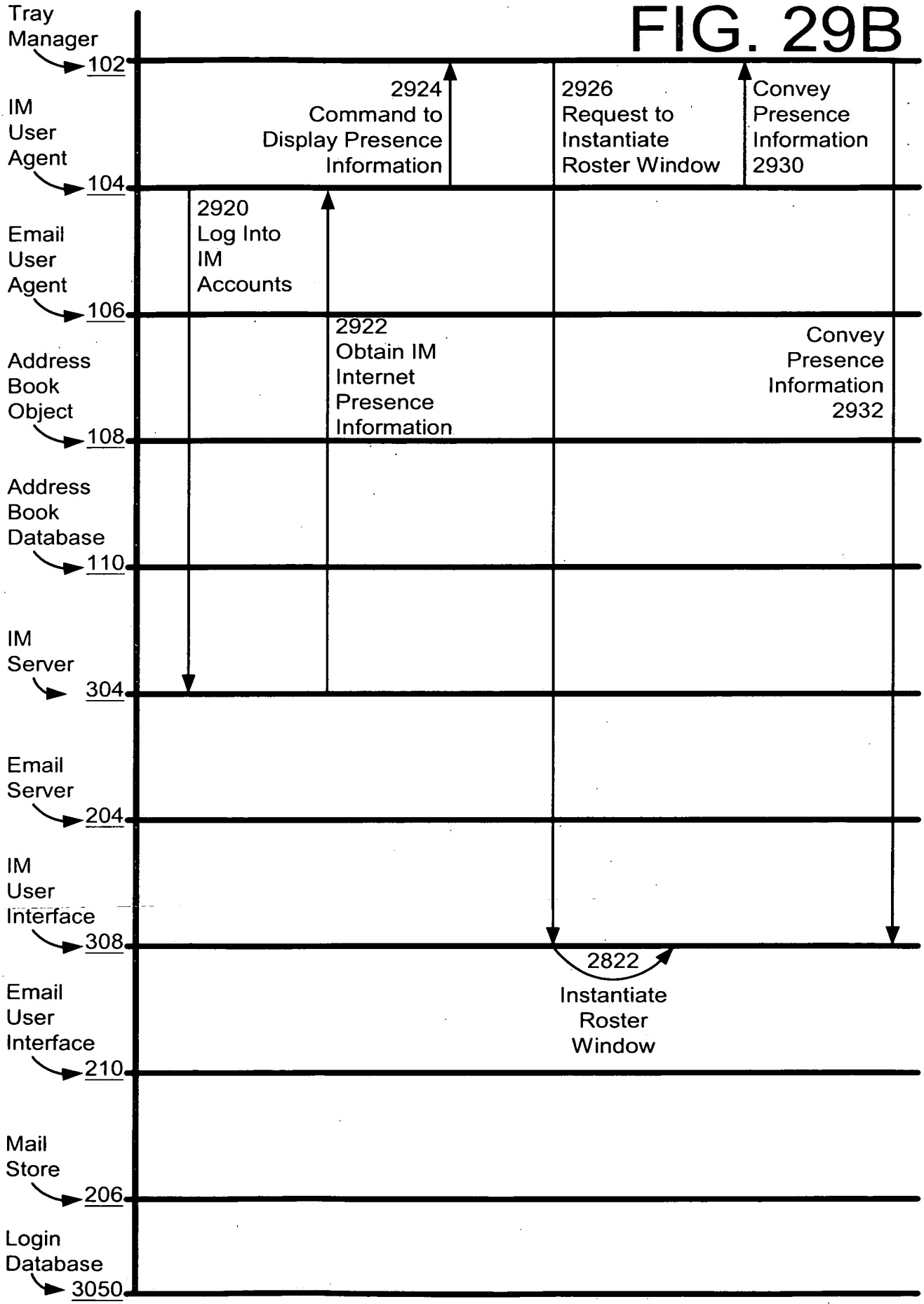

Tray Manager 102
IM User Agent 104
Email User Agent 106
Address Book Object 108
Address Book Database 110
IM Server 304
Email Server 204
IM User Interface 308
Email User Interface 210
Mail Store 206
Login Database 3050
Receive Selection of IM User Interface 2902
2904 Instantiate IM User Interface
Login Name and Password 2910
Receive Login Name and Password 2908
2906 Query User for Login Name and Password
2916 Request All IM Names and Passwords
2918 Receive All IM Login Names and Passwords
Look Up Login Database 2912
Confirm Login Name and Password 2914

FIG. 29A

FIG. 29B


Tray Manager 102
IM User Agent 104
Email User Agent 106
Address Book Object 108
Address Book Database 110
IM Server 304
Email Server 204
IM User Interface 308
Email User Interface 210
Mail Store 206
Login Database 3050
2924 Command to Display Presence Information
2926 Request to Instantiate Roster Window
Convey Presence Information 2930
2920 Log Into IM Accounts
2922 Obtain IM Internet Presence Information
Convey Presence Information 2932
2822 Instantiate Roster Window

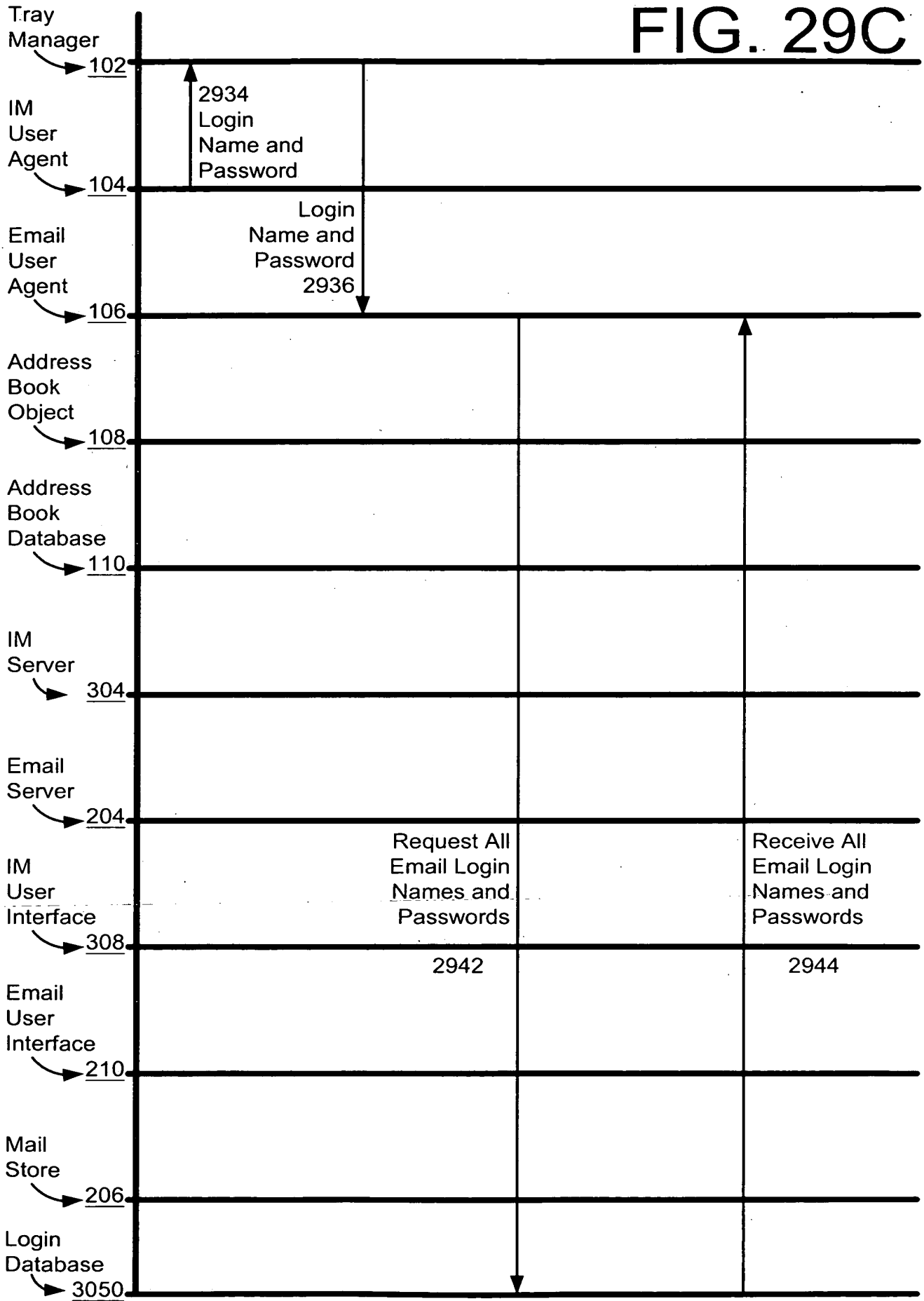
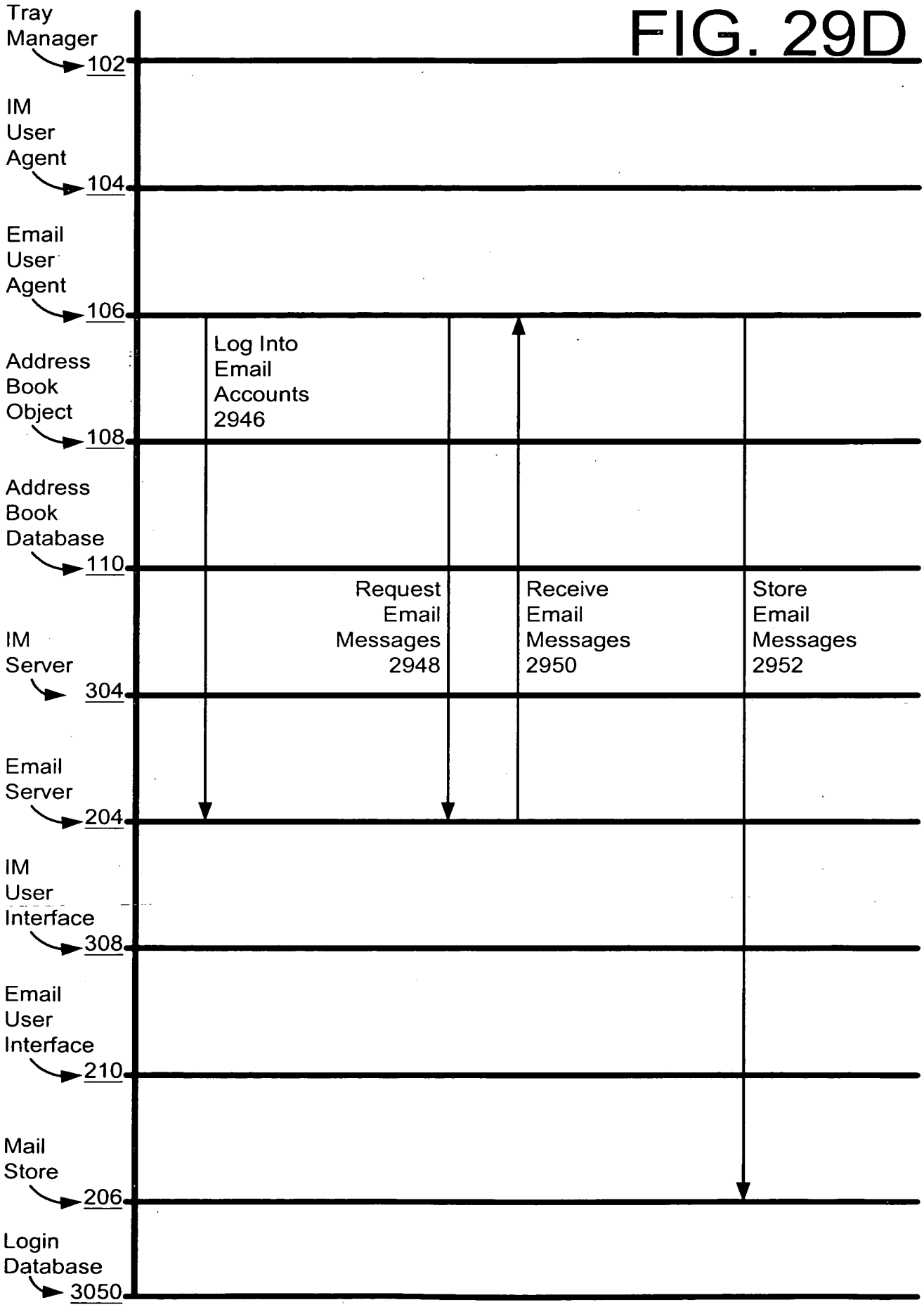

Tray Manager 102
IM User Agent 104
Email User Agent 106
Address Book Object 108
Address Book Database 110
IM Server 304
Email Server 204
IM User Interface 308
Email User Interface 210
Mail Store 206
Login Database 3050
2934 Login Name and Password
Login Name and Password 2936
Request All Email Login Names and Passwords
2942
Receive All Email Login Names and Passwords
2944

FIG. 29C

FIG. 29D


Tray Manager 102
IM User Agent 104
Email User Agent 106
Address Book Object 108
Address Book Database 110
IM Server 304
Email Server 204
IM User Interface 308
Email User Interface 210
Mail Store 206
Login Database 3050
Log Into Email Accounts 2946
Request Email Messages 2948
Receive Email Messages 2950
Store Email Messages 2952

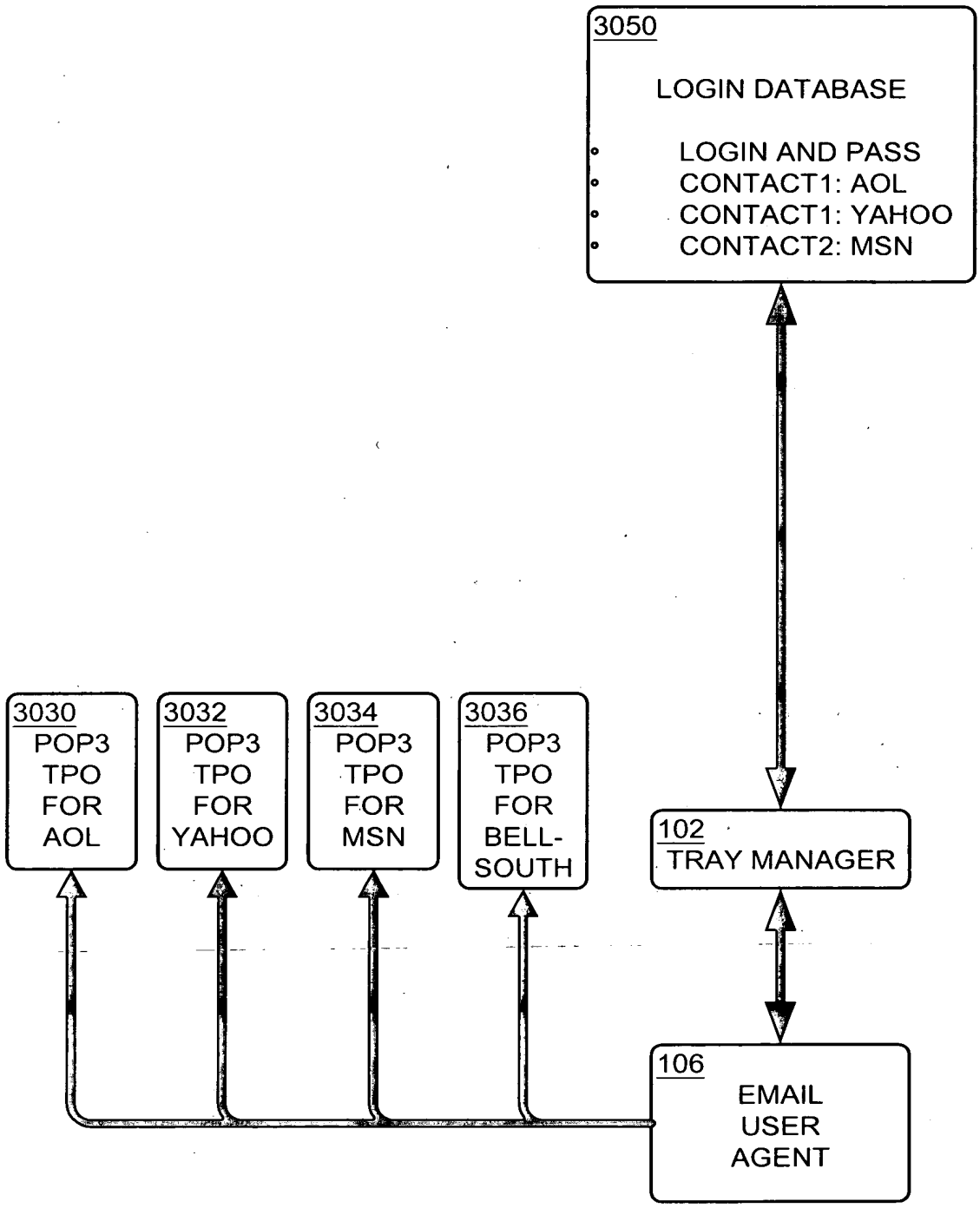

3050
LOGIN DATABASE
LOGIN AND PASS
CONTACT1: AOL
CONTACT1: YAHOO
CONTACT2: MSN
3030
POP3 TPO FOR AOL
3032
POP3 TPO FOR YAHOO
3034
POP3 TPO FOR MSN
3036
POP3 TPO FOR BELL-SOUTH
102
TRAY MANAGER
106
EMAIL USER AGENT

FIG. 30

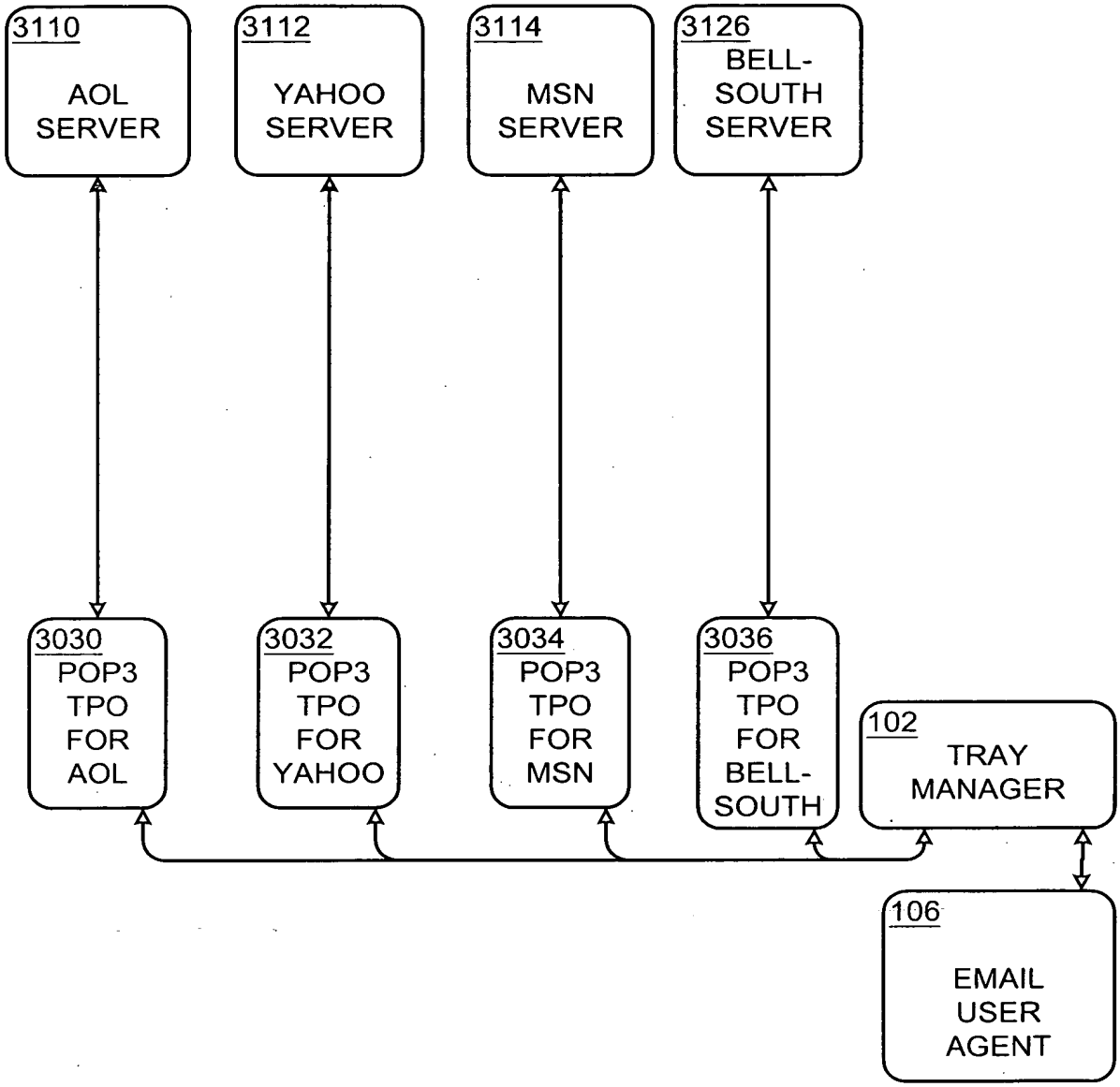

3110
AOL SERVER
3112
YAHOO SERVER
3114
MSN SERVER
3126
BELL-SOUTH SERVER
3030
POP3 TPO FOR AOL
3032
POP3 TPO FOR YAHOO
3034
POP3 TPO FOR MSN
3036
POP3 TPO FOR BELL-SOUTH
102
TRAY MANAGER
106
EMAIL USER AGENT

FIG. 31